



INSTRUCTIONS FOR USE

PCR system

PHILIPS COMPUTED RADIOGRAPHY

Edition 6

English

PHILIPS

PCR System

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English



Instructions for use

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Overview of contents

System Information

Contains overlapping system information including safety instructions and a description of the workflow.

PCR Terminal

Describes the general operation procedure on the PCR Terminal as well as the advanced user menu.

Image Reader

Describes the operation of the various readers (PCR Compano, PCR CosimaX, PCR Corado).

Preview Console

Describes the operation of the Preview console.

Note:

The documentation for EasyVision RAD is in a separate file.

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1 Introduction

1.1 What is the PCR System?

The PCR System (Philips Computed Radiography) is a system for digitizing cassette exposures in diagnostic radiography. In the PCR System, conventional film screen systems are replaced by so-called image plates which store X-rays in the form of excited charge carriers. Swift, uncomplicated image processing guarantees good image quality even under critical exposure conditions. For this reason the PCR System is particularly suitable for casualty departments and intensive care units.

At the PCR terminal the user selects the patient data and the examination to be performed (the data can also be transferred via an RIS) and then scans the barcode on the image plate. In the image reader the plate is read out and assigned to the appropriate examination. Then it is reset to the basic status and can now be reused.

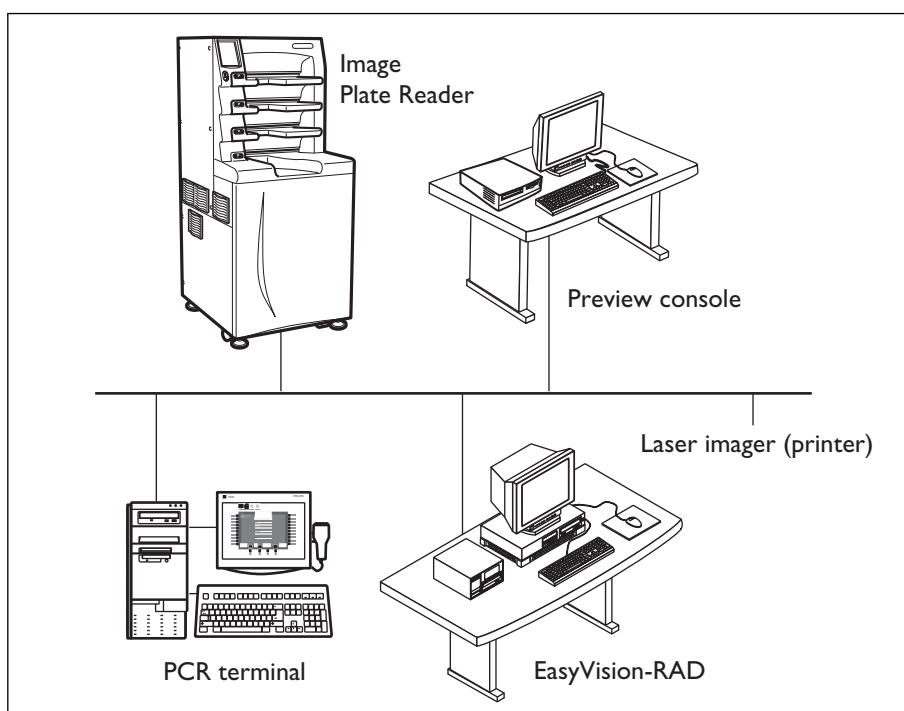


Fig. 1.1 PCR system components

The read-out image data are transmitted to the EasyVision RAD computer, where they are processed into analysable images. These images can then be automatically printed, stored in memory or transmitted. Using the tools provided, images can be postprocessed and output in user-defined layouts.

A high degree of automation – from data entry to image output - provides support to the user during his daily routine procedures. The PCR System automatically communicates with other DICOM partners and archives via the clinic network. Bidirectional data transmission with an existing RIS (Radiological Information System) ensures efficient data communication within the radiology unit.

1.2 Application information

1.2.1 User qualification

For working with the PCR System, you must possess basic specialist knowledge of radiology, image-supported medical diagnostics and digital image processing. Before working with the PCR System for the first time, you must be thoroughly instructed in its operation by no one less qualified than a specialist trained by Philips.

Philips recommends that all users participate in special training for safe handling of this product. Further information on training sessions can be requested from your local Philips Customer Service.



DANGER

Incorrect use of the image processing functions may produce image artefacts. Diagnostically relevant image information may then be suppressed or falsely displayed. You must have substantial knowledge of digital processing to change the settings within a processing protocol.

1.2.2 Normal use

The PCR System is used to process, display and output radiological images which have been prepared by means of cassette exposures and processed within the PCR System. This also applies to images transmitted via connection to 'DigitalDiagnost' or the 'THORAVISION' pulmonary X-ray unit. Images from other diagnostic units, such as the DSI, CT or MR systems, or other images imported via data media can only then be correctly processed if the appropriate optional applications are installed on the EasyVision RAD computer. The PCR System is not suitable for the processing and display of images generated on systems from other manufacturers or compressed using software from other suppliers.

1.2.3 Conformity

This Medical Device meets the provisions of the Medical Device Directive 93/42 EEC (93). If you have further questions regarding the applicable national or international standards, please address them to:

Philips Medical Systems DMC GmbH
Quality Assurance Department
Roentgenstrasse 24
D-22335 Hamburg
Fax: (+49) 40/50 78-21 47



1.2.4 Conventions used in these Instructions for Use

These Instructions for Use utilise the following conventions to better distinguish between various types of information.



DANGER

This is how warnings are labelled to indicate high-priority information. You must always follow these warnings to avoid causing damage to the equipment or data loss.

NOTE

This is how a note is labelled to draw your attention to a certain point or to make working with the equipment easier.

- 1 The individual steps in a set of instructions are numbered.
 - The sequence of steps are labelled with a point.

Terms that are also used in the software are emphasised by quotation marks, e.g. the 'Print' window.

2 Safety instructions



DANGER

Please observe the following information.

2.1 General safety instructions

This manual is designed to make it possible for you to operate the equipment described safely. You should use this equipment only in accordance with the safety instructions contained in this manual and not use it for purposes other than for which it is intended. This unit must be operated only by specially qualified persons instructed in its use.

In the United States, Federal law restricts this device to sale, distribution, and use by or on the order of a physician.

It is always the user who is responsible for complying with the regulations which apply to the installation and operation of equipment.

You must never use the equipment if it has any electrical, mechanical or radiation defects. This particularly applies to malfunctioning indication, warning and alarm devices.

If the user wishes to connect the equipment up to units, components or assemblies other than those described in the section entitled “Compatibility“, and if safe combination with such units, components or assemblies is not apparent from the technical data, the user must, by consulting the manufacturers concerned or an expert, ensure that safety of the patient, operating staff and the environment is not affected by the proposed combination.

Philips is responsible for the safety features of its products only if maintenance, repairs and modifications are carried out by Philips or persons explicitly authorized by Philips to do so.

As with any piece of technical equipment this equipment must be operated properly and it must be serviced and attended to properly at regular intervals in accordance with the section entitled “Maintenance“.

If you fail to operate the equipment properly or if the user fails to keep it properly maintained, Philips cannot be held liable for any resulting malfunctions, damage or injuries.

Safety circuits must be neither removed nor modified. You may remove or open parts of the housing only if you are instructed to do so in this manual.

2.1.1 Electrical safety

This X-ray equipment meets the safety class I and type A according to IEC 60601-1.

To ensure reliable operation of the workstation and protect it from overheating, the openings on the unit must never be blocked or covered. The workstation must never be set up in the vicinity of heating devices.

This unit should be connected to an uninterruptible power system to prevent damage to the database and image loss in case of power failure.

Some components of the workstation are operated at high voltage. Only electricians may remove the covers from the equipment.

2.2 Special safety precautions

2.2.1 Deviations in brightness in multiple exposures

Images which are processed using the UNIQUE technique may be exposed on the cassette only as single exposures. If a cassette is exposed more than once, deviations from the brightness of a single exposure may arise when processing using the UNIQUE technique. These deviations result from the unexposed areas between the collimations, which appear on the image plate in the case of multiple exposures.

2.2.2 Damage as a result of inserting cassettes incorrectly

Always take care when inserting the cassettes into the cassette compartment of the plate reader. The plate reader may be damaged if the cassette is inserted incorrectly, for example at an angle. Please heed the information given in the chapter „Inserting a Cassette“ on page 121 and 138.

2.2.3 Data inconsistency

Do not switch the PCR terminal off at the power switch if the PCR application program is displayed. This can lead to errors in the database or to data inconsistency. When switching off, always follow the sequence described in the chapter „Switching off the PCR terminal“ on page 64.

2.2.4 Laser radiation warning

All plate readers operate with laser radiation (class IIIB, 50mW). Do not open the housing of the plate reader under any circumstances. Contact, especially eye contact, with laser radiation can damage your health. Malfunctions may only be rectified by qualified technicians.

2.2.5 Mechanical safety

Never transport the unit while in operation. Switch off before transporting and ensure that all peripheral parts of the system (monitor, mouse, keyboard, connecting leads etc.) are transported separately and safely.

2.2.6 Cleaning and care

Ensure that no liquids are allowed to enter the equipment as they may cause short circuits or corrosion to components. The keyboard, mouse and screen should be cleaned with a damp cloth and a mild detergent only. Other cleaning agents and disinfectants can produce explosive mixtures of gases. Please follow the relevant instructions.

2.3 Disposal

Philips manufactures state-of-the-art X-ray equipment in terms of safety and environmental protection. Assuming no parts of the system housing are opened and assuming the system is used properly there are no risks to persons or the environment.

To comply with regulations it is necessary to use materials which may be harmful to the environment and therefore have to be disposed of in a proper manner.

For this reason you must not dispose of the X-ray equipment together with industrial or domestic waste.

Philips

- supports you in disposing of the X-ray equipment described in a proper manner
- returns reusable parts to the production cycle via certified disposal companies and
- thus helps to reduce environmental pollution.

Consequently, do contact your Philips Service Organisation in full confidence.

2.4 Electromagnetic compatibility (EMC)

In accordance with its intended use, this electronic apparatus complies with the law governing EMC, which defines the permitted emission levels from electronic equipment and its required immunity against electromagnetic fields.

The system conforms to CISPR 11 of classification group 1, class B. It contains IT components of class A as per CISPR 22. Although it has been demonstrated that the performance and safety of the system are not adversely affected by this, electromagnetic incompatibility may occur when used in residential districts. In this case it may be necessary for the operator to take suitable measures in this regard.



Nevertheless, it is not possible to exclude with absolute certainty the possibility that radio signals from high-frequency transmitters, e.g. mobile phones or similar mobile radio equipment, which themselves conform to the EMC regulations, may influence the proper functioning of electromedical apparatus if such equipment is operated in close proximity and with relatively high transmitting power. Therefore, operation of such radio equipment in the immediate vicinity of electronically controlled medical apparatus should be avoided to eliminate any risk of interference.

Explanation

Electronic apparatus that satisfies the EMC requirements is designed so that under normal conditions there is no risk of malfunction caused by electromagnetic interference. However, in the case of radio signals from high-frequency transmitters with a relatively high transmitting power, the risk of electromagnetic incompatibility when operated in close proximity to electronic apparatus cannot be totally ruled out.

In unusual circumstances unintended functions of the apparatus could be initiated, possibly giving rise to undesirable risks for the patient or user.

For this reason, all kinds of transmission with mobile radio equipment should be avoided. This also applies when the apparatus is in „standby“ mode.

Mobile telephones must be switched off in designated problem zones.

3 Maintenance

As with any technical appliance this X-ray equipment also requires

- proper operation,
- regular testing by the user,
- regular service and repair.

By taking these precautions you maintain the operability and operational reliability of the system. As the user of the unit you are obliged according to accident prevention regulations, the medical products law and other regulations to take such precautions.

Maintenance consists of tests which the user can perform and maintenance which is performed under service agreements, Philips service orders or by persons explicitly authorised to do so by Philips.

3.1 Tests and inspections by the user

The user must check the equipment for apparent defects according to the table. If performance defects or other departures from normal behavior occur, the user must switch off the equipment and inform the Service Organization. He may resume operation of the equipment only when the defects have been remedied. Operation using defective components may lead to an increased safety risk.

Interval	Scope	Method
Once a day	Defective indicator lamps, damaged components, labels and warnings	Inspection
Once a week	All cables and sockets (damage/breakage)	Inspection
Monthly	Cleaning the image plates	Maintenance
Every three months	Cleaning the plate reader (see next topic)	Maintenance

3.1.1 Cleaning the plate reader

NOTE *Before starting to clean the plate reader, switch it off and unplug it at the mains (see page 116).*

Remove the dust that gathers on the outside of the plate reader approximately every three months. To clean, start with a vacuum cleaner and then use a moist cloth. Remove any remaining moisture using a dry cloth.

Remove the dust filter and the filter cover on the right side of the device as a single unit. Firstly take off the cover and remove the filter insert. Clean this with a vacuum cleaner.

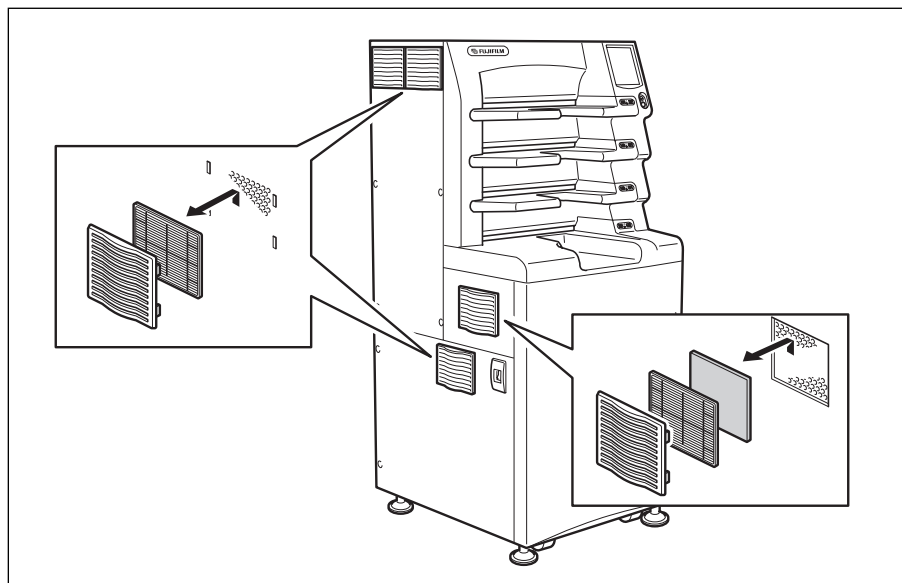


Fig. 3.1 Cleaning the dust filter

3.2 Safety checks according to the Medical Products Law

The safety checks cover operability and operational reliability. They must be performed at least every 2 years. These tests constitute part of our preventive maintenance under our service agreements.

They cover

- visual checking for completeness and apparent damage or defects as well as soiling, sticking parts and wear and tear which may affect safety,
- testing the necessary monitoring, safety, display and indicating systems,
- measuring the safety-relevant output parameters,
- for the particular product other special technical tests according to the generally accepted standards of engineering practice,
- other necessary tests specified by the manufacturer.

3.3 Maintenance

Technical medical systems contain mechanical components which are subject to wear and tear during normal operation. The correct setting of electro-mechanical and electronic components affects operation, image quality and electrical safety.

Philips recommends you to

- perform the tests indicated in the table on a regular basis,
- have the equipment serviced by the Philips Service Organisation at least once a year.
- By entering into a service agreement with Philips you retain the value and safety of your equipment. All the necessary maintenance, including the safety tests for the purpose of preventive avoidance of danger and the necessary settings for optimum image quality and minimum exposure to radiation, are performed at regular intervals. Philips agrees on these intervals with you, taking the legal requirements into account.

Repairs



WARNING

Faulty components which affect the safety of the X-ray equipment must be replaced by genuine spare parts.

Recording results

Service and repairs must be entered in the medical products logbook, including the following data:

- type and scope of work,
- if necessary, details of any changes to ratings or the working zone,
- date, person performing the work, signature.

4 System information

4.1 PCR system configurations

The illustrations below show examples of two system configurations of varying complexity.

4.1.1 Example 1: Basic PCR system

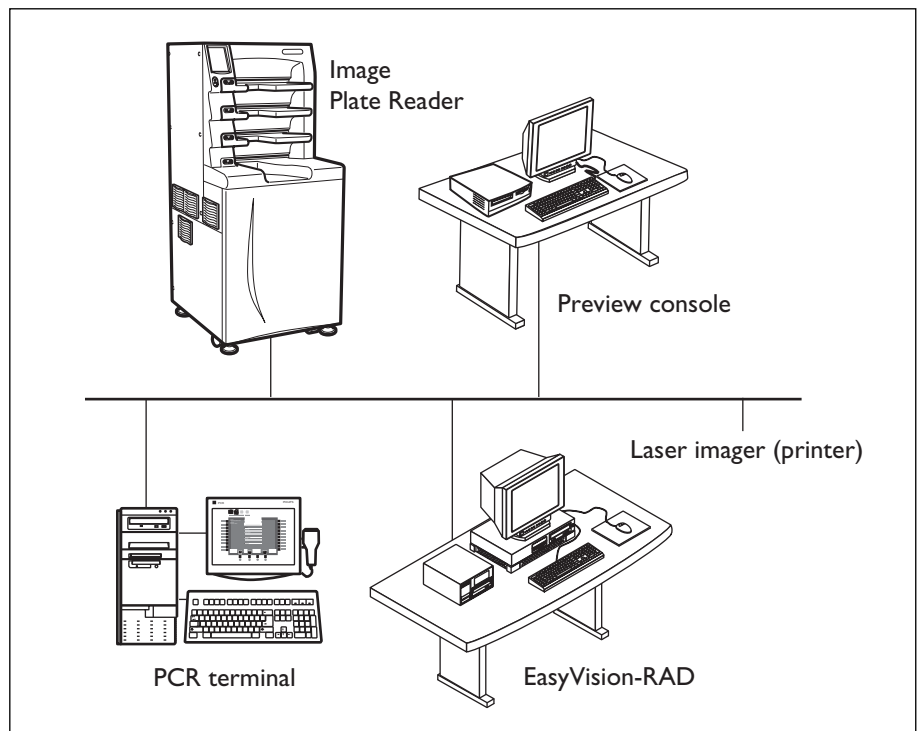


Fig. 4.1 Basic PCR system

4.1.2 Example 2: Complex PCR system

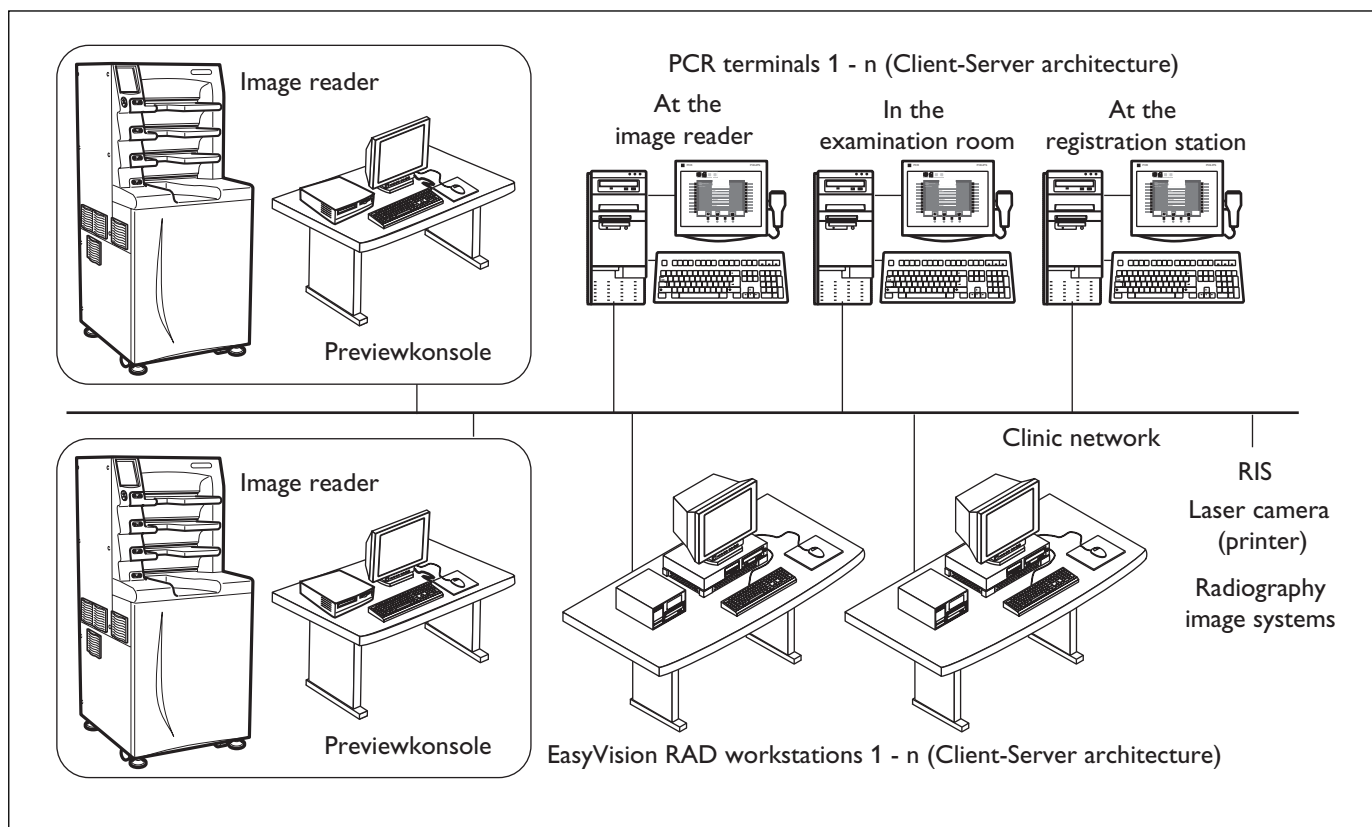


Fig. 4.2 Example 2: Complex PCR system

PCR terminals

At the PCR terminals the patient and examination data are entered and assigned to the cassette. Within complex PCR systems the PCR terminals operate in a client-server architecture. To enter data one can select any PCR terminal. The data display is identical on all the PCR terminals. Also there are no differences in user operation at client and server terminals.

PCR image reader

In the image reader the exposed plates in the cassette are read. If more than one image reader is connected up, any unit can be selected. However, in practice it has proved useful to process the various exposures of a patient on the same image reader. This ensures that the images are transferred to the same EasyVision RAD computer.

NOTE

You should take note of a special feature in systems comprising more than one plate reader and an EasyVision RAD computer. If two examinations for the same patient are edited simultaneously on two plate readers and then transferred to an EasyVision RAD computer, then this will result in two patient folders being created. These two patient folders must be combined manually on the EasyVision RAD computer.

Preview console

The Preview console is used for the initial viewing and quality control of the images read. The Preview console is assigned to a specific image plate reader with which it forms a single unit.

EasyVision RAD

The EasyVision RAD workstation is used to process images and post-edit radiological images. Within complex PCR systems the EasyVision RAD computers connected up operate in a client-server architecture. The table below shows the functional differences.

Type	Special features
Server	Has a central database on the internal hard disk
Client	Has no database of its own and therefore no functions relative to its customization; access to the central database via the Server.
Single-station computer	The database is on the internal hard disk.

4.2 PCR System procedure

The illustration on the following page demonstrates a typical procedure of work on the PCR System for performing examinations. The individual steps depend on the following factors.

- **RIS connection**
If patient data are transmitted via RIS, manual entry at the PCR terminal is no longer needed. It is only necessary to select the required patient from the patient list.
- **Barcode reader**
The patient data can be entered in the PCR System using a barcode reader.
- **Prior scheduling of examinations**
If examinations are scheduled beforehand at the PCR terminal, selection of the anatomical region and the examination are unnecessary. It is possible that the correct projection must still be selected.
- **Type of examination**
If the specified routine projections have been performed, selecting the projection and conclusion of the examinations is no longer necessary.
- **Individual working method**
The sequence of individual working steps can be varied according to the system configuration and the working technique in your department. Philips recommends the standard procedure illustrated here for safe performance of examinations.

NOTE

Working procedures differing from those described here involve the risk of incorrect assignment of entered data and of the exposure actually produced.

Further details concerning operation can be found in the respective Instructions for Use for the system components.

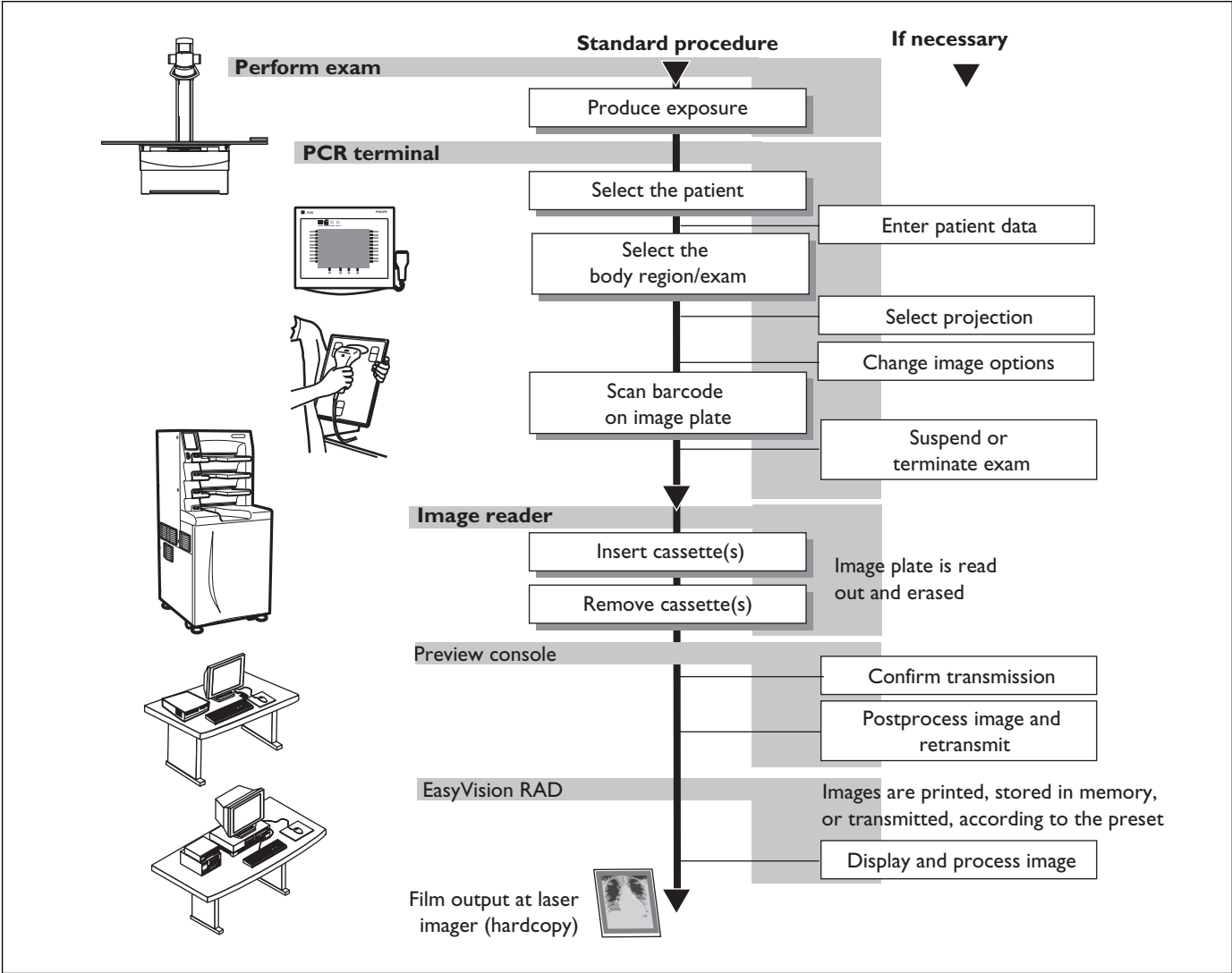


Fig. 4.3 PCR system procedure

4.3 PCR System – Switch-on Sequence

Philips recommends the following sequence when starting the system:

- 1 EasyVision RAD (see the Instructions for Use "EasyVision RAD")
- 2 PCR terminal
- 3 PCR image plate reader (see section "PCR image plate reader")
- 4 Preview console

4.4 PCR System – Switch-off Sequence

NOTE *The PCR system is designed for continuous operation. Thus it is only necessary to switch off all components in the event of lengthy interruptions in operation.*

Philips recommends the following sequence when switching off the PCR system:

- 1 Preview console
- 2 PCR image plate reader (see section "PCR image plate reader")
- 3 PCR terminal
- 4 EasyVision RAD (see the Instructions for Use "EasyVision RAD")

4.5 Making Exposures

4.5.1 Exposure settings

To make an expose, take a cassette with an erased image plate and use the same settings on the X-ray generator as for the conventional screen film technique. For further information on this topic refer to the section „Exposure technique“ on page 44.

4.5.2 Cassette position for the exposure

PCR cassettes must be positioned as follows in the cassette tray of the diagnostic unit or for free exposures.

- 1 Always align **the back** of the cassette toward the X-ray source.

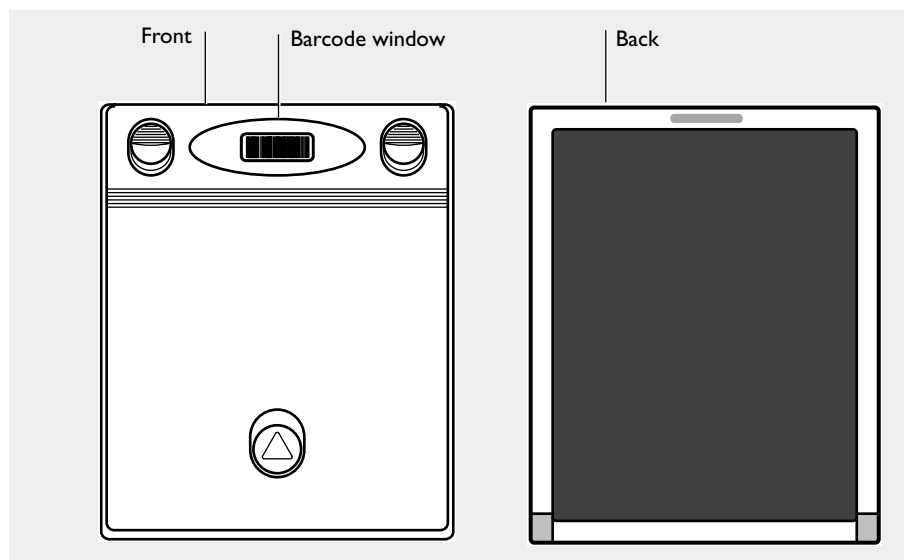


Fig. 4.4 Front and back of cassette

- 2 To expose the cassette, align it in such a way that the green mark is positioned either at **the top** of the back or at **the right side**.

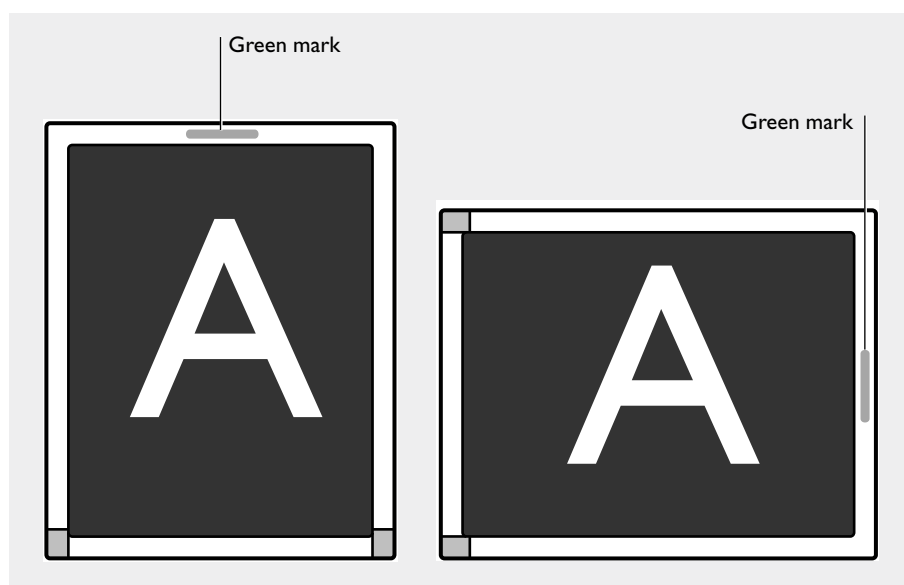


Fig. 4.5 Green mark on the back of the cassette

18 cm x 24 cm format

18 cm x 24 cm format cassettes have two green marks on the back. Align these cassettes as follows.

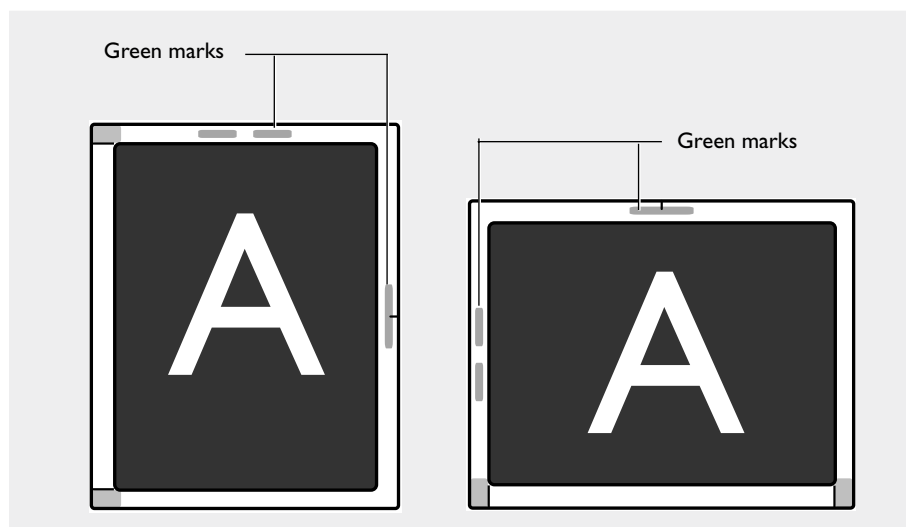


Fig. 4.6 Cassette position for the 18 cm x 24 cm format

4.6 Handling cassettes and image plates

This Section provides important information about handling and looking after cassettes and image plates.

DANGER

Potential disruptions

The cassettes may be physically damaged if they are not handled carefully. This in turn may cause disruptions or total system failure. Any particles of dirt on the image plate may severely affect its performance and hence image quality. Always treat the cassettes and image plates with due care and clean the image plate at regular intervals. It is absolutely essential that you observe the following instructions.

4.6.1 Treatment of cassettes and image plates

Treat cassettes and image plates as carefully as possible and avoid any unnecessary physical risks.

Physical risks

Ensure that the cassette is not damaged when you insert it into the cassette compartment of the image reader or into the cassette tray of the diagnostic unit, and when you remove it. Never drop cassettes on the floor.

To prevent scratching with your fingernails always wear gloves when you remove the image plate from the cassette.

Image plates must not be bent, knocked or subject to any other type of stress. If they are dropped they may become damaged or scratched. Fingernail scratches may also reduce image quality. Do not use damaged image plates as they will not produce optimum image quality.

Dirt and dust

If dirt or dust is allowed to collect on the image plates it may cause damage or reduce image quality. For this reason you should ensure that the surface of the image plates is free of dirt and dust at all times.

Storing image plates

When storing image plates, ensure that the storage environment satisfies the following conditions:

- Max. 35°C in sealed packaging
- Max. 33°C once packaging has been opened and max. 80% relative humidity

CAUTION

Store the image plates out of direct sunlight and away from other sources of radiation.

Store the image plates on a level surface and avoid bending and any other type of mechanical stress.

Transport conditions

Take care not to drop or throw the boxes in which the image plates are packed. Ensure that the boxes do not come into contact with moisture and are not subjected to excessive heat (above 45°C).

Cleaning image plates

CAUTION

- **When an image plate has been cleaned it must be completely dry before you use it again.**
- **Handle the cassettes with care and avoid high mechanical stress, for example, bumping or dropping the cassette.**

Have the insert supplied for cleaning the image plate ready. Clean the upper side first and then place the rubber-coated insert in the cassette. Then turn over the image plate and clean the other side. Further information on cleaning can be found in the chapter "System information" of the Operator's Manual in the section "Handling cassettes and image plates".

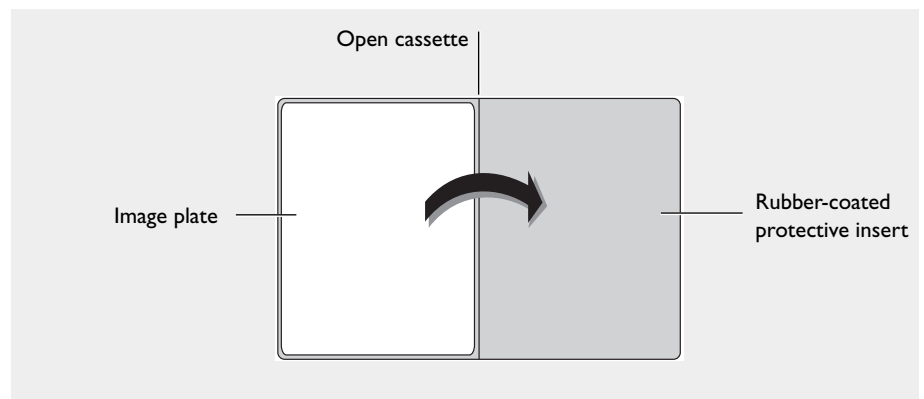


Fig. 4.7 Cleaning image plates

Once a month, remove the image plates from the cassette stacker and check whether any surface dirt or dust has collected. If it has, the image plates must be cleaned. Use lint-free cotton (gauze, 100% cotton) and a lens cleaner such as Toraysee®. Rub the cleaning cloth over the plate gently as shown below:

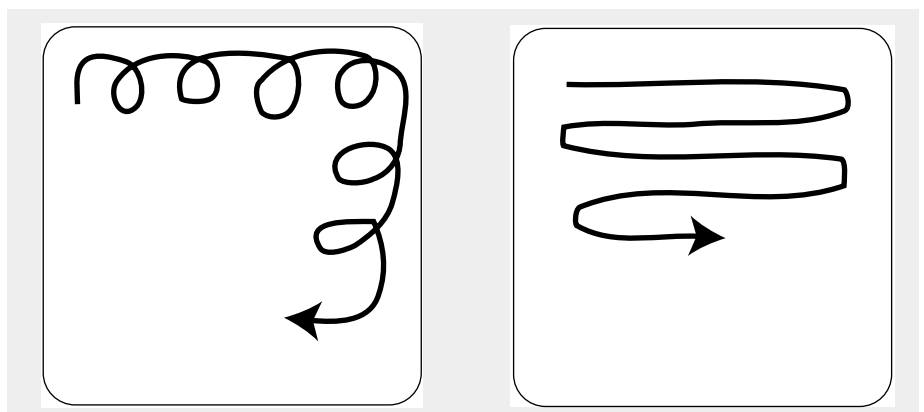


Fig. 4.8 Cleaning image plates

Remove dust and dirt from both sides of the image plate, not just the phosphorescent side.

If you are unable to remove spots of dirt with this method, moisten the cleaning cloth with ethanol. Do not use any other cleaning agents such as solvents. If you use ethanol please note the following points.

- After cleaning, wipe the image plate with a dry cloth.
- If image plates are cleaned with ethanol frequently, the edges may yellow with time. This does not impair image quality.

Removing and loading image plates

Unlike previously used plates, both sides of the special mammography image plates for the PCR CosimaX can be used. The front and rear of the plate are no longer as easy to differentiate. The rear of the image plate has a slight yellowish shine and can be identified by the green mark; the front of the image plate has a matt white appearance.

NOTE

Always handle the front and rear of the special mammography image plates with great care. Ensure that the surface of the image plate does not get scratched, or damaged in any other way.

- 1 Unlock the lid of the cassette by sliding the locks on the rear of the cassette and opening the lid.

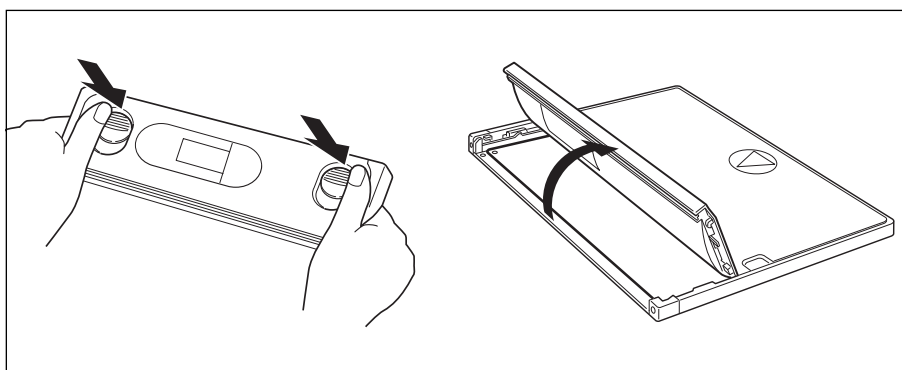


Fig. 4.9 Opening the lid of the cassette

The rear of the image plate has a slight yellowish shine and can be identified by the green mark. There is also a green mark on the upper edge of the cassette which is aligned above the green mark of the image plate.

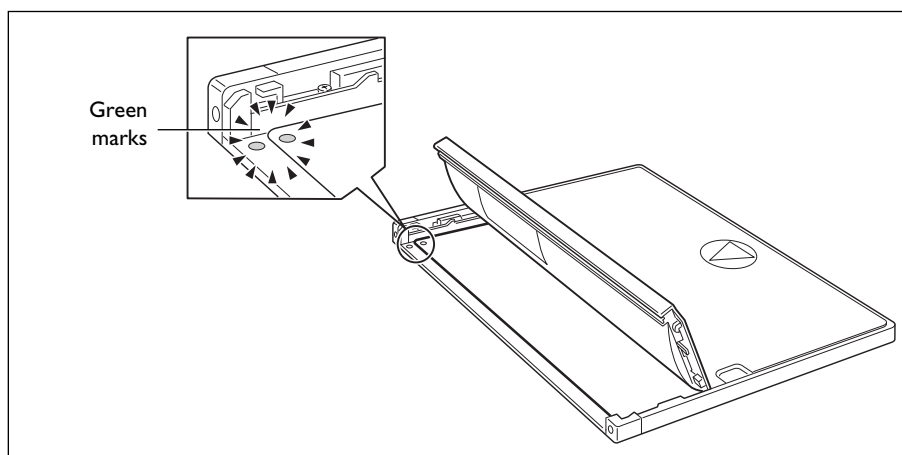


Fig. 4.10 Green marks indicate the correct position

- 2 Remove the image plate, for instance, to clean it at regular intervals.
- 3 Afterwards, carefully place the image plate back in the cassette, so that the front of the plate is facing the same direction as the front of the cassette. The green mark on the reverse of the plate reader must be positioned in line with the green mark on the cassette (see Fig. 4.10). Before you close the cassette again, ensure that the image plate does not project out of the cassette.
- 4 Lock the cassette lid by sliding the locks on the rear of the cassette.

4.7 Film labelling

The following examples illustrate the information which is output on the film with the factory setting and how this information is arranged. The position of the individual items of information is dependent on the type of document and the configurable settings (as from EasyVision RAD 4.2.3). Further information concerning film labelling can be found in the Instructions for Use for the EasyVision RAD computer.

4.7.1 'PCR' document type

The following illustration shows the film labelling for the 'PCR' document type and the 'Patient data once' setting.

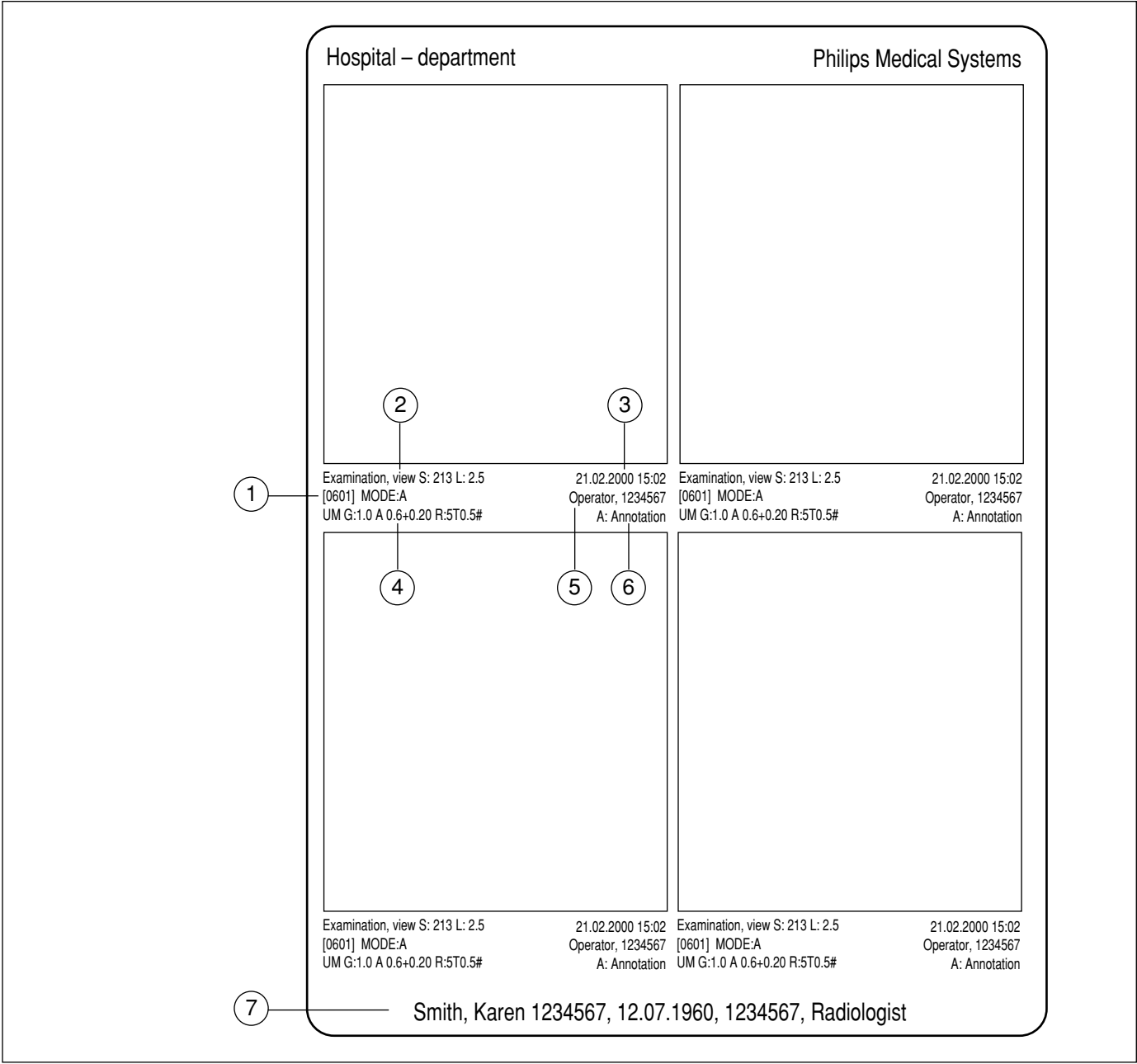


Fig. 4.11 Film output for 'PCR'

Pos.	Explanations
1	<i>MRM code and MODE</i> (image reader read modes): A = auto mode, S = semi-auto mode, F = fixed mode, M = manual (manual change of the S/L values on the image reader)
2	<i>Exam, projection, S values</i> (sensitivity): sensitivity when reading out (brightness), <i>L values</i> (latitude): signal width when reading out (contrast)
3	<i>Exam date</i> in the order day - month - year, <i>exam time</i>
4	<p><i>Processing protocol in the UM technique</i></p> <p>The G values relate to gradation in this order: GA (rotation amount), GT (gamma type), GC (rotation centre), GS (density shift). The R values relate to image filtering in this order: RN (frequency rank), RT (frequency type), RE (frequency enhancement)</p> <p><i>Processing protocol in the DRR technique (not shown)</i></p> <p>E = enhancement, S = sharpening curve, K = kernel size, W/L = window width/level, G = gamma curve</p> <p># <i>change indicator</i>: indicates that the default values in a processing protocol have been changed manually.</p>
5	'Operator' abbreviation (= entered by the user at the PCR terminal) and the <i>barcode number</i> for the image plate (not with AC2 or AC3)
6	A: <i>Note</i> (entered by the user at the PCR terminal)
7	In the order: <i>name of the patient, patient number (ID), patient's date of birth, Registration number of the image</i> (DICOM accession number), <i>name of the radiologist</i> (only for RIS connection)

4.7.2 ‘Normal’ document type

The following illustration shows the film labelling for the ‘Normal’ document type.

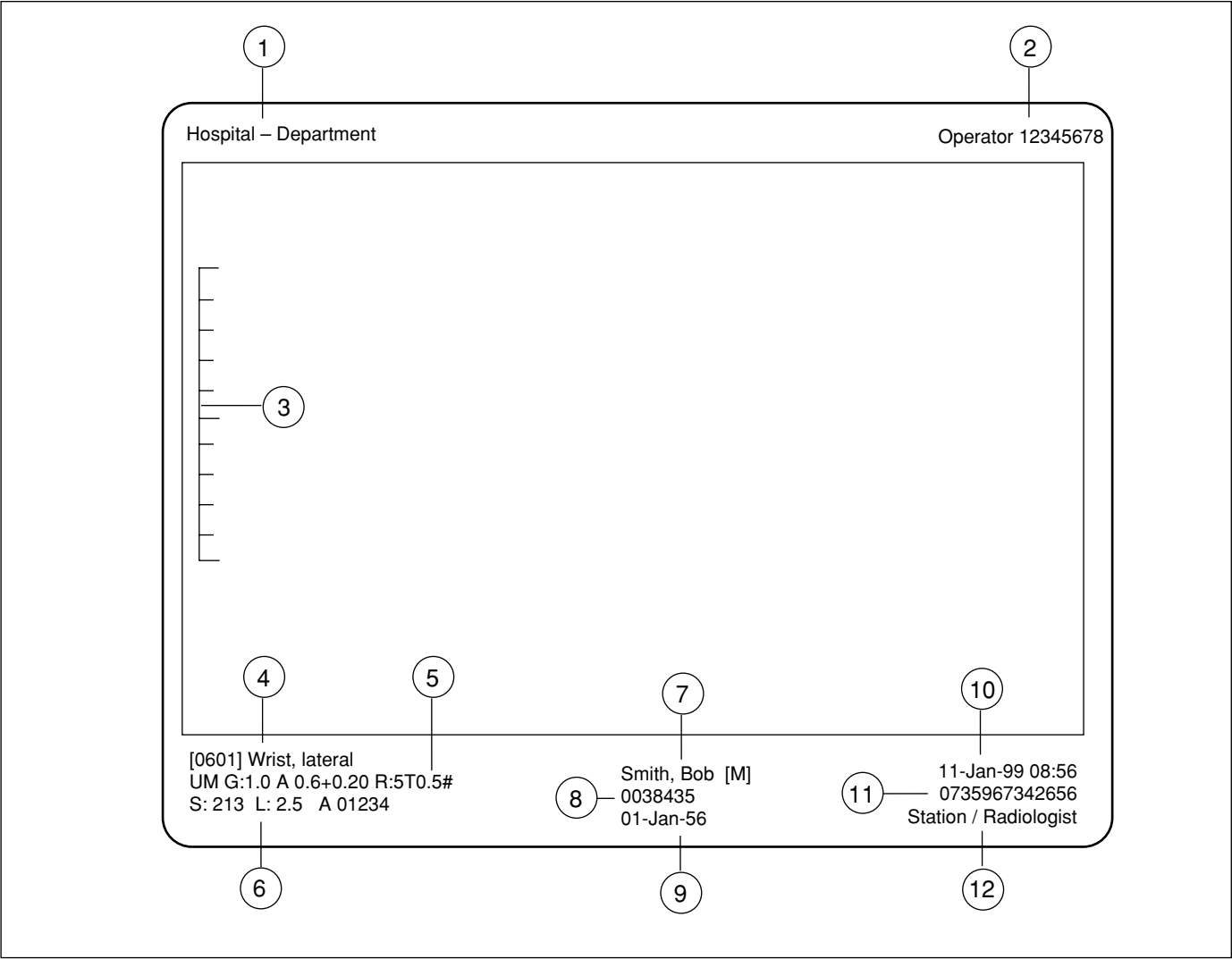


Fig. 4.12 Film output for ‘Normal’

Pos.	Explanations
1	Name of the clinic and department (preset by Philips Customer Service)
2	'Operator' abbreviation (= entered by the user at the PCR terminal) and the barcode number for the image plate (not with AC2 or AC3)
3	Scale (1 cm graduation marks)
4	<i>MRM code, exam, projection</i>
5	<p><i>Processing protocol in the UM technique</i></p> <p>The G values relate to gradation in this order: GA (rotation amount), GT (gamma type), GC (rotation centre), GS (density shift). The R values relate to image filtering in this order: RN (frequency rank), RT (frequency type), RE (frequency enhancement)</p> <p><i>Processing protocol in the DRR technique (not shown)</i></p> <p>E = enhancement, S = sharpening curve, K = kernel size, W/L = window width/level, G = gamma curve</p> <p># <i>change indicator</i>: indicates that the default values in a processing protocol have been changed manually.</p>
6	<p><i>S values</i> (sensitivity): sensitivity when reading out (brightness)</p> <p><i>L values</i> (latitude): signal width when reading out (contrast)</p> <p>Image reader modes A = auto mode, S = semi-auto mode, F = fixed mode, M = manual (manual change of the S/L values on the image reader)</p> <p><i>Number</i>: total number of processed images since the last system start (numbered consecutively)</p>
7	Name and sex of the patient
8	Patient number (ID)
9	Patient's date of birth: day - month - year
10	<p><i>Exam date</i> in the order day - month - year</p> <p><i>Exam time</i></p>
11	<p><i>Registration number</i> of the image (DICOM accession number)</p> <p>– or –</p> <p>A: <i>Note</i> (entered by the user at the PCR terminal)</p>
12	Patient's place of residence and/or name of the radiologist (only for RIS connection)

4.7.3 ‘Mammo’ document type

The following illustration shows the film labelling for the 'Mammo' document type.

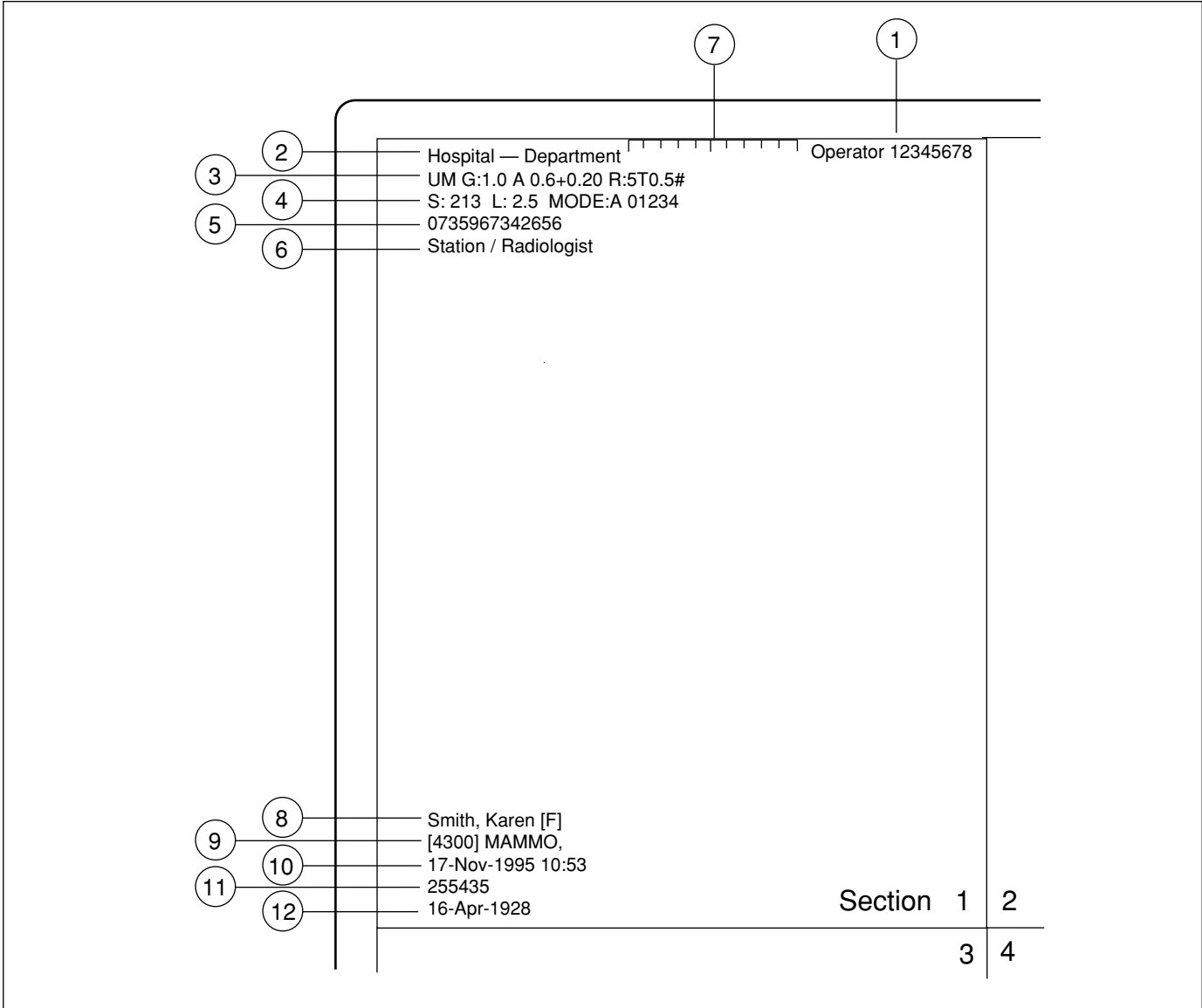


Fig. 4.13 Film output for 'Mammo'

Pos.	Explanation
1	'Operator' abbreviation (= entered by the user at the PCR terminal) and the barcode number for the image plate (not with AC2 or AC3)
2	Name of the clinic and department (preset by Philips Customer Service)
3	<p><i>Processing protocol in the UM technique</i></p> <p>The G values relate to gradation in this order: GA (rotation amount), GT (gamma type), GC (rotation centre), GS (density shift). The R values relate to image filtering in this order: RN (frequency rank), RT (frequency type), RE (frequency enhancement)</p> <p><i>Processing protocol in the DRR technique (not shown)</i></p> <p>E = enhancement, S = sharpening curve, K = kernel size, W/L = window width/level, G = gamma curve</p> <p><i># change indicator:</i> indicates that the default values in a processing protocol have been changed manually.</p>
4	<p><i>S values</i> (sensitivity): sensitivity when reading out (brightness) <i>L values</i> (latitude): signal width when reading out (contrast)</p> <p><i>MODE</i> (image reader read modes) A = auto mode, S = semi-auto mode, F = fixed mode, M = manual (manual change of the S/L values on the image reader)</p> <p><i>Number:</i> total number of processed images since the last system start (numbered consecutively)</p>
5	<p><i>Registration number</i> of the image (DICOM accession number)</p> <p>– or –</p> <p>A: <i>Note</i> (entered by the user at the PCR terminal)</p>
6	Patient's place of residence and/or name of the radiologist (only for RIS connection)
7	Scale (1 cm graduation marks)
8	Name and sex of the patient
9	<i>MRM code, exam, projection</i>
10	<p><i>Exam date</i> in the order day - month - year</p> <p><i>Exam time</i></p>
11	Patient number (ID)
12	Patient's date of birth: day - month - year

4.7.4 ‘THORAVISION’ document type

The following illustration shows the film labelling for the 'THORAVISION' document type. (only when connected to the 'THORAVISION' pulmonary X-ray unit).

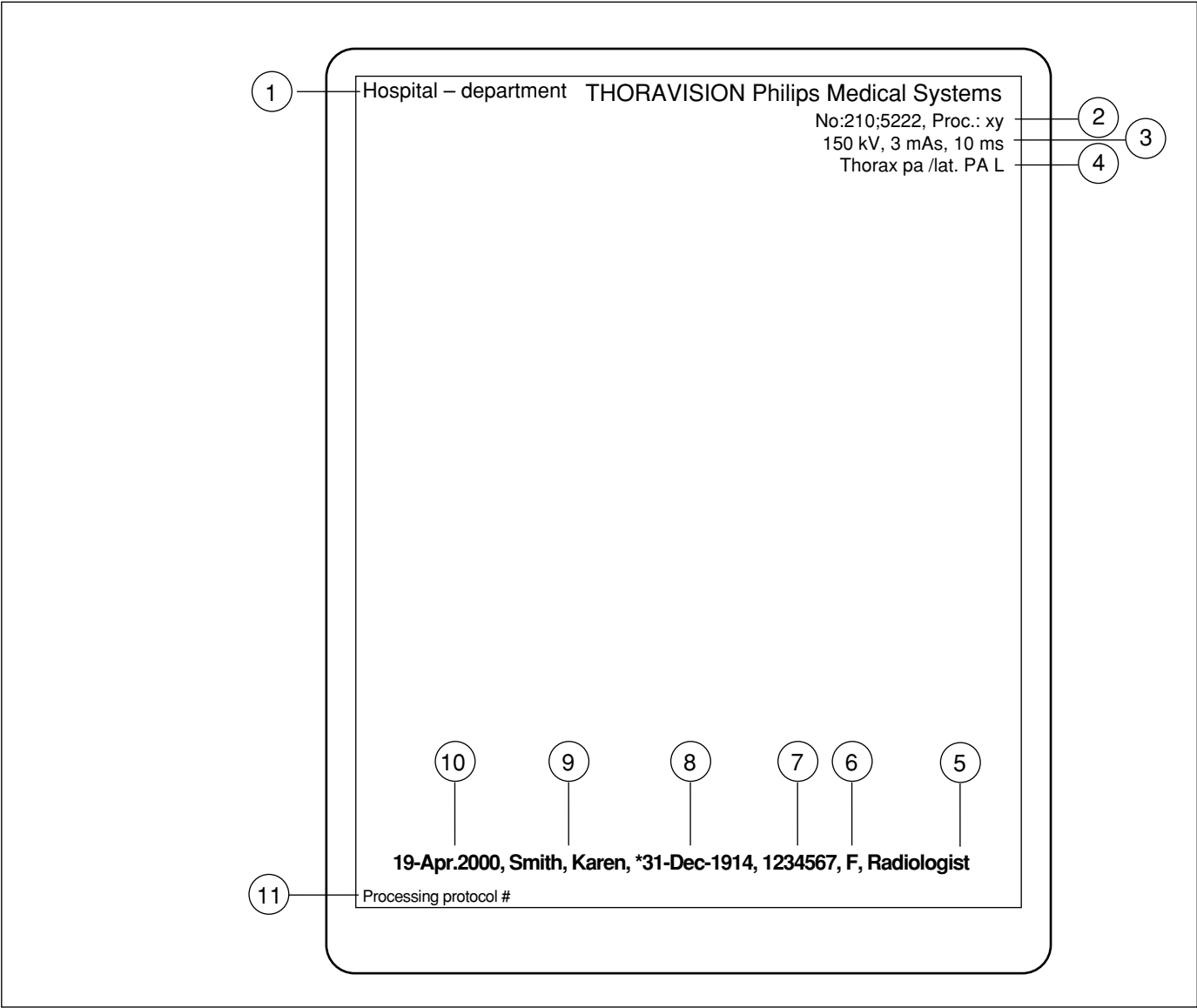


Fig. 4.14 Film output for 'THORAVISION' images

Pos.	Explanations
1	Name of the clinic and department (preset by Philips Customer Service)
2	Image number and processing type
3	Exposure parameters kV, mAs, ms
4	Exam, projection, patient position
5	Name of the radiologist
6	Sex of the patient
7	Patient number (ID)
8	Patient's date of birth: day - month - year
9	Patient's name
10	Date of the exam
11	<i>Parameters of the processing protocol</i>

4.7.5 ‘DigitalDiagnost’ document type

The following illustration shows the film labelling for the 'DigitalDiagnost' document type.

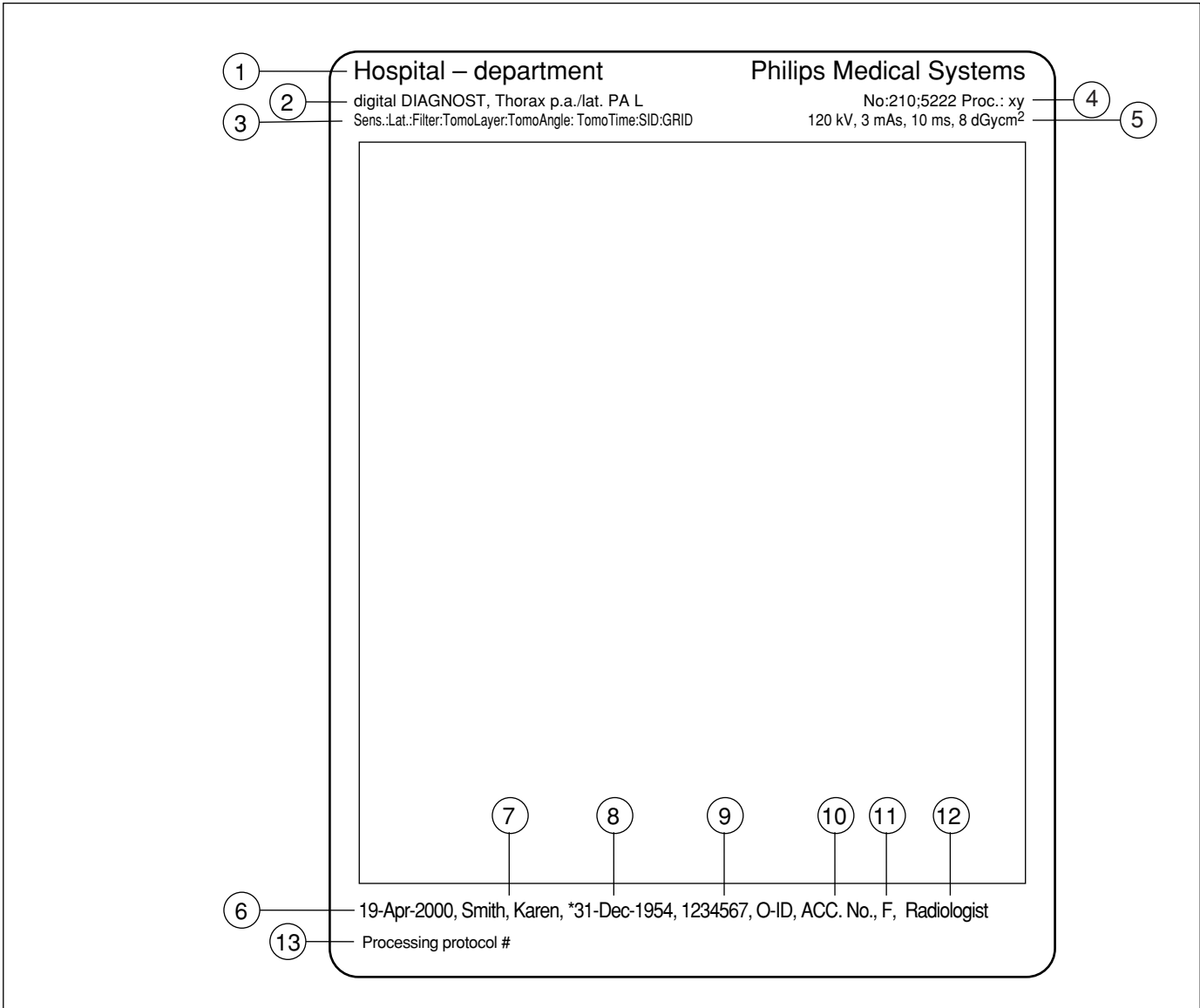


Abb. 4.15 Film output for 'Digital Diagnost' images

Pos.	Explanations
1	Name of the clinic and department (preset by Philips Customer Service)
2	Exam, projection, patient position, exam time
3	Settings at the Digital Diagnost
4	Image number and processing type
5	Exposure parameters kV, mAs, ms
6	Date of the exam
7	Patient's name
8	Patient's date of birth: day - month - year
9	Patient number (ID)
10	Registration number of the image (DICOM accession number)
11	Sex of the patient
12	Name of the radiologist
Only for PCR images	
13	<i>Parameters of the processing protocol</i>

4.8 Exposure technique

In the following, general rules are given which must be observed when exposing image plates and selecting various operating modes for the image reader (read modes).

- NOTE
- If an image plate has not been used for longer than 8 hours, you should perform a secondary erase before the next application in order to erase any natural radiation absorbed in the meantime. You can find further information on this in the Instructions-for-Use module ‘PCR Terminal’.*
 - If defects occur in the image, in spite of observing all the exposure instructions, please notify Philips Customer Service. Poor image quality or image defects may be caused by specific scattered radiation from your diagnostic unit or by use of a beam limitation system.*

4.8.1 Exposure parameters and image quality

In general, image plates are exposed with the same exposure parameters as conventional film screen systems. In contrast to conventional systems, the image plate nevertheless reacts differently to changes in the exposure parameters, as seen in the table below.

Exposure parameter		Image plate	Film screen system
Radiation dose (mAs)	high	uniform, fine grained	too dense
	low	uniform, coarse grained	not dense enough
Tube voltage (kV)	high	no significant change in overall contrast	reduced contrast
	low	no significant change in overall contrast	increased contrast

A change in the radiation dose for image plates does not lead to variations in density, but in **grain**. Nevertheless, it is still possible to influence the image quality by adapting the exposure parameters.

When using automatic exposure control, a uniform density is achieved for conventional film screen systems, while an almost uniform grain is produced for image plates.

4.8.2

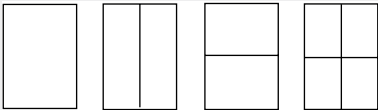
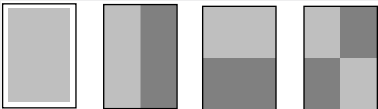
Using Bucky devices and stationary grids

With grid exposures, ensure that the grid is not aligned parallel to the hinges of the cassette.

4.8.3

Subdividing image plates

In all operating modes, the image reader recognises the following multi-frame exposure formats on an image plate.

Subdivisions	Symbol
Single-frame, vertically and horizontally divided two-frame, four-frame collimation	
Use of the areas without collimation	

- NOTE
- *The exposed area within a multi-image subdivision must not be too small. At least one third of the area of a plate subdivision must be exposed*
 - *Ensure that the edges of an exposed plate subdivisions do not overlap substantially with metal parts.*

4.8.4

Various exposure techniques

The following exposure techniques are available:

- Standard exposure
- Exposures with contrast medium
- Tomography
- Tomography with contrast medium

Dedicated parameters sets for reading the image plates have been programmed for each of these exposure techniques. For good results, the exposure technique selected and the settings must match the actual exposure conditions.

4.8.5 Operating modes (read modes)

In the interactive 'Image Options' window on the PCR terminal, you can select the following operating modes for reading an image plate:

'Auto' (default setting)

Exposure and the object circumference are measured in this mode.

'Semi'

This mode is used for irregular collimations. The centre of the image plate must be exposed, since that is where the image reader evaluates the exposure.

'Fixed'

In this mode, the image plate behaves like a conventional film screen combination with a preset sensitivity.

'Manual'

In this operating mode, the image plate is read in 'Auto' mode. Then a function window appears on the image reader monitor for manually setting the S and L values.

NOTE

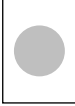



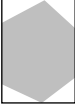

The 'Manual' mode is not available on the AC3 image reader.

‘AUTO’ mode operation

The ‘Auto’ operating mode is set as a default on the PCR terminal. The majority of exposures can be read in this operating mode.

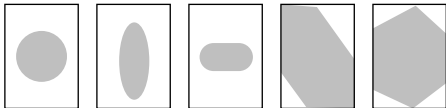
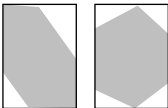

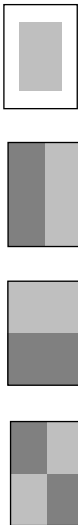
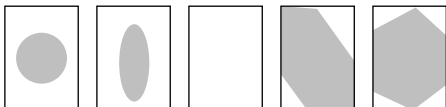

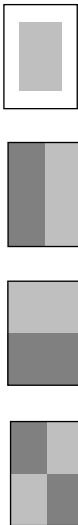
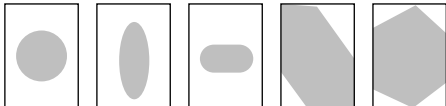

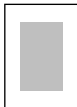
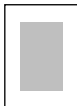
Collimations

The following collimations are possible in Auto mode.

Collimation form	Symbols
Circle, oval, rounded rectangle, irregular polygon	    
Rectangle Parallel to the sides of the image plate	

In the following illustrations, the collimations shown here will be used as symbols.

Overview of body regions

	Standard exposure	Exposure with contrast medium	Tomography
Head	<div></div>	<div></div>	
Neck			<div></div> <div>See note 3</div>
Chest			<div></div>
Abdomen	<div></div>	<div></div>	<div></div>
Pelvis			<div>See note 2</div> <div>Subdivisions not permissible</div>
Upper extremities	<div></div>	<div></div>	<div>See note 4</div>
Lower extremities			<div>See note 1</div>
Exceptions	<div>Chest exposures with contrast medium, oesophagus exposures or exposures of the intestinal tract with enema</div> <div></div>		<div>See note 4</div>
	<div>Exposures of the stomach</div> <div></div>		<div>See note 3</div>

Note 1

This collimation code is used with standard exposures and exposures with contrast medium from the head to the lower extremities. Permissible collimations:

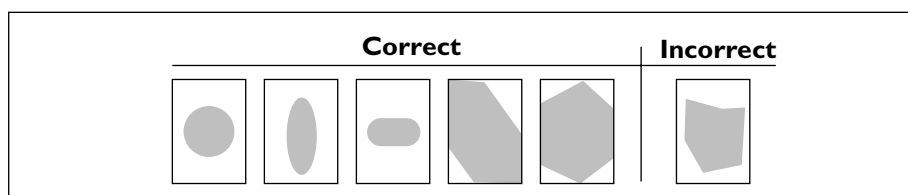


Fig. 4.16 Permissible and impermissible collimations

You may subdivide the image plate as follows:

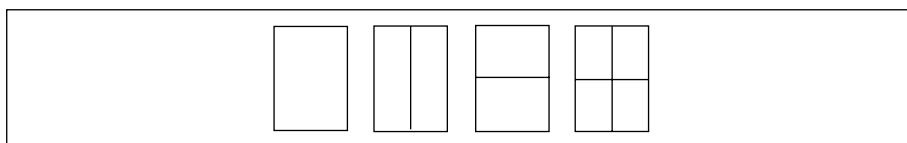


Fig. 4.17 Permissible plate subdivisions

If you subdivide the image plate, all frames in a multi-frame area must be exposed. Do not leave any frames unexposed. Ensure that the irradiated field is not too small. More than **one third** of the subdivision must be exposed. With round collimation forms, set the diameter so that the side (l) of the square enclosed in the circle is larger than one third of the length of side (L) of the subdivision.

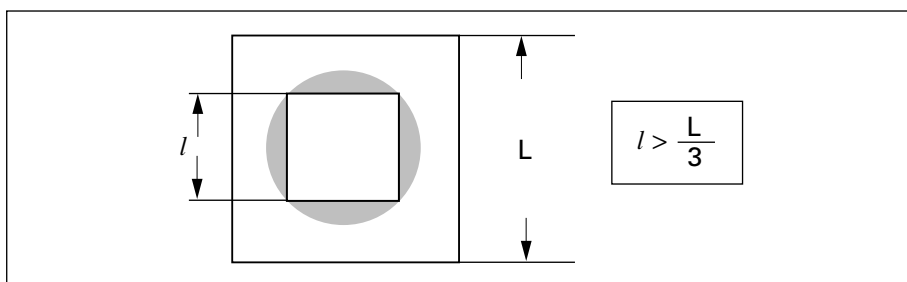


Fig. 4.18 Round collimation

Ensure that the edges of exposed plate subdivisions do not overlap substantially with metal parts. Position the object that you want to image as near as possible to the centre of the image plate. If you are working with multi-frame formats, the object must be as near as possible to the middle of the split area.

Note 2

This collimation code is used with standard exposures from the head to the pelvis. Permissible collimations:

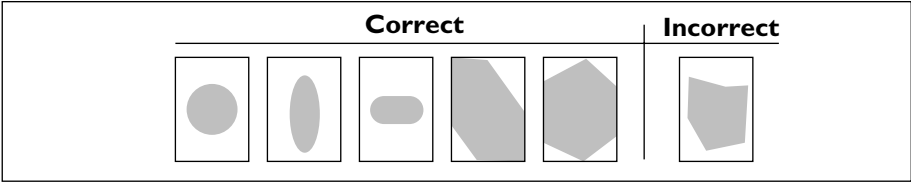


Fig. 4.19 Permissible and impermissible collimations

Ensure that the irradiated field is not too small. More than one third of the subdivision must be exposed. With round collimation forms, set the diameter so that the side (l) of the square enclosed in the circle is larger than one third of the length of side (L) of the subdivision.

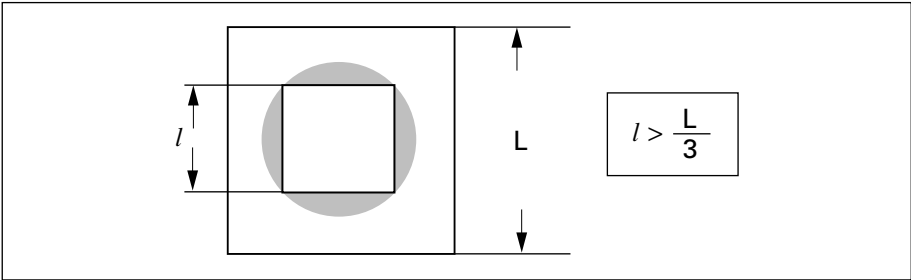


Fig. 4.20 Round collimation

Ensure that the edges of exposed plate subdivisions do not overlap substantially with metal parts. If you subdivide the image plate, you must expose the entire surface of the plate without collimation.

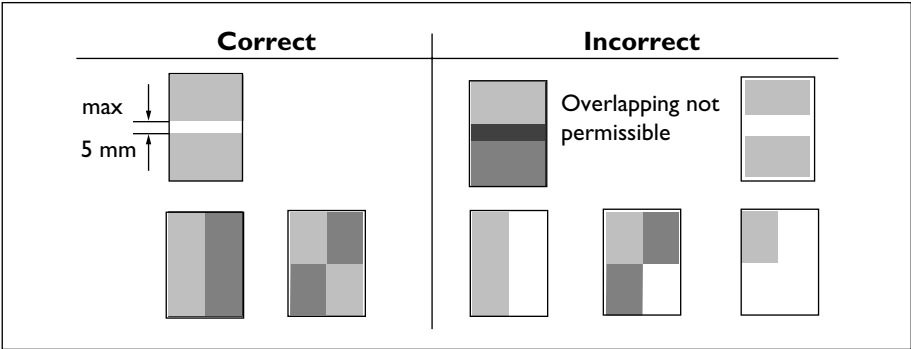


Fig. 4.21 Permissible and impermissible collimations

Note 3

This collimation code is used with all tomographic exposures such as chest, abdomen, and pelvis as well as upper and lower extremities.

Position the cassette in the exposure stand of the examination unit exactly and avoid displacement. Ensure that the collimation is parallel to the sides of the image plate. If you are performing rectangular collimation, the angular deviation from the side of the image plate must not exceed 3°.

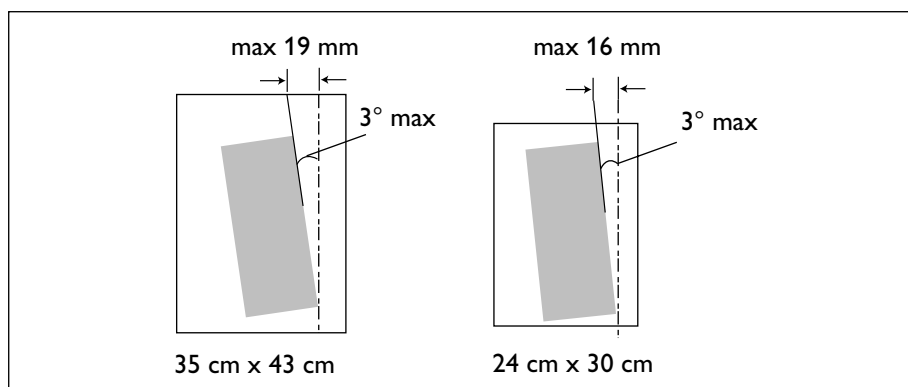


Fig. 4.22 Maximum angular deviation of the collimation

With symmetrical collimation, the following requirements must be met:

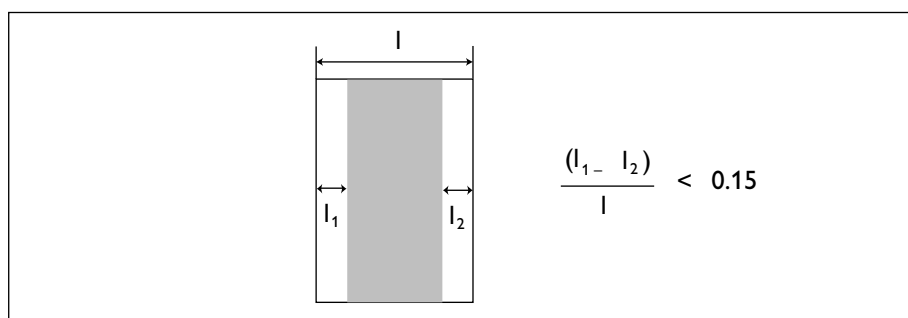


Fig. 4.23 Symmetrical collimation

With one-sided collimation, the following requirements must be met:

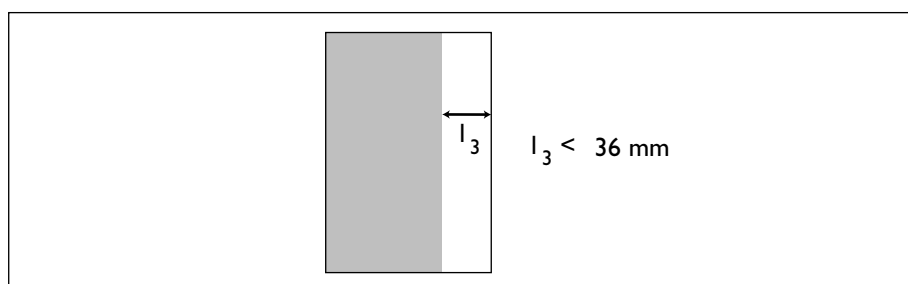


Fig. 4.24 One-sided collimation

The centre field of the image plate must be located in the irradiated area.

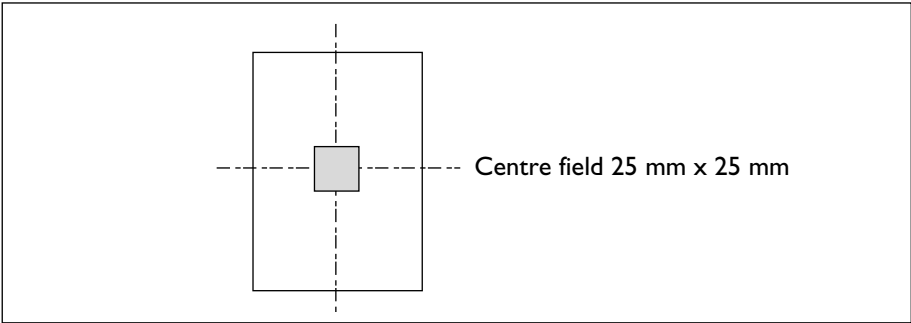


Fig. 4.25 Centre field

The edge (l) of the irradiated field must be larger than one third of the short side of the image plate.

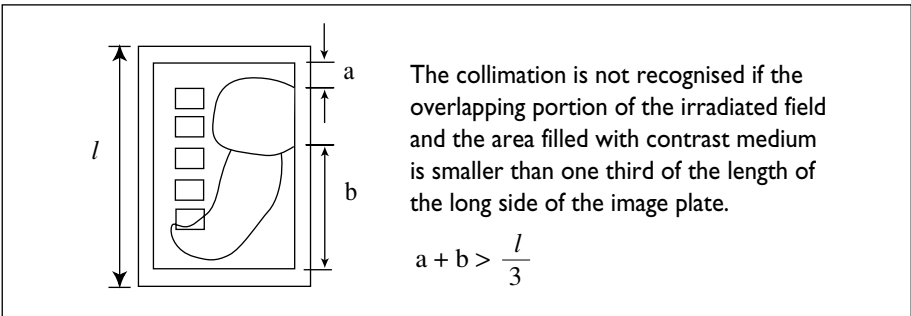


Fig. 4.26

Ensure that the edges of exposed plate subdivisions do not overlap substantially with metal parts. If you subdivide the image plate, you must expose the entire surface of the plate without collimation.

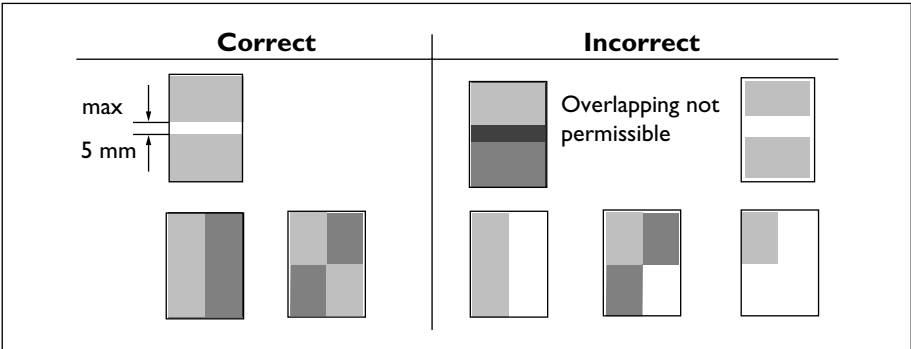


Fig. 4.27 Permissible and impermissible collimations

Note 4

This collimation code is used for exposures of the neck and for exposures of the stomach with contrast medium.

Position the cassette in the exposure stand of the examination unit exactly and avoid displacement. Ensure that the collimation is parallel to the sides of the image plate. If you are performing rectangular collimation, the angular deviation from the side of the image plate must not exceed 3°.

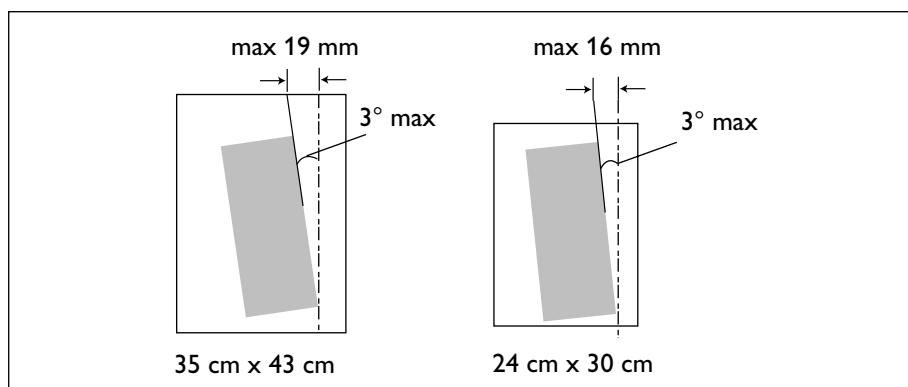


Fig. 4.28 Maximum angular deviation of the collimation

With symmetrical collimation, the following requirements must be met:

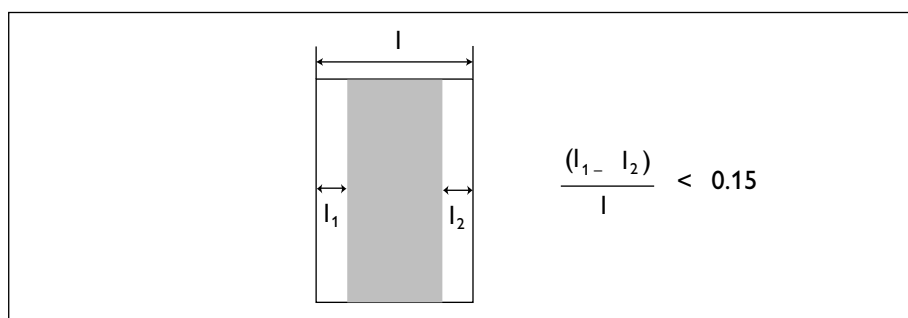


Fig. 4.29 Symmetrical collimation

With one-sided collimation, the following requirements must be met:

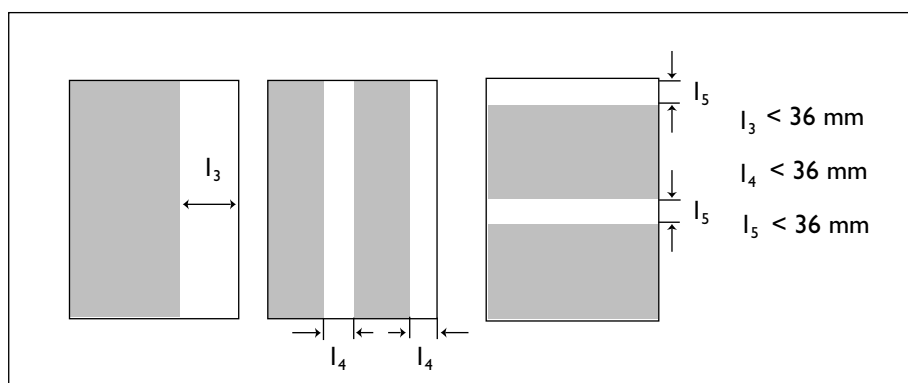


Fig. 4.30 One-sided collimation

If you only use the image plate for one collimation you should not extend it excessively to one side of the plate.

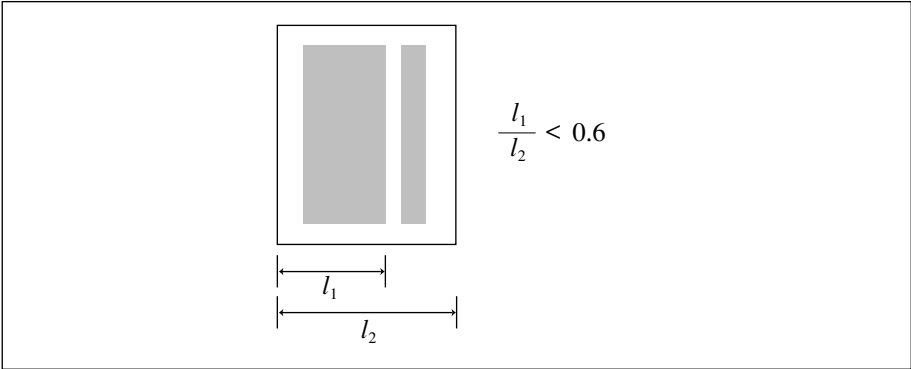


Fig. 4.31 Size ratios for a collimation

You may subdivide the image plate as follows:

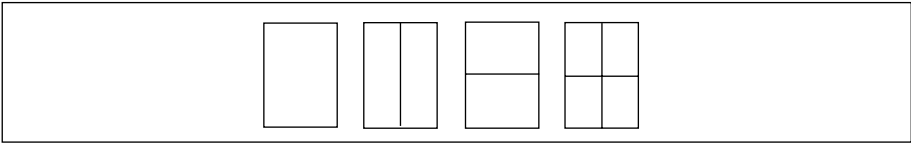


Fig. 4.32 Permissible plate subdivisions

The side (l) of the irradiated field must be larger than the one third of the short side of the image plate. The centre field of the image plate must be located in the exposed area. Subdivisions must also expose the centre field of the image plate.

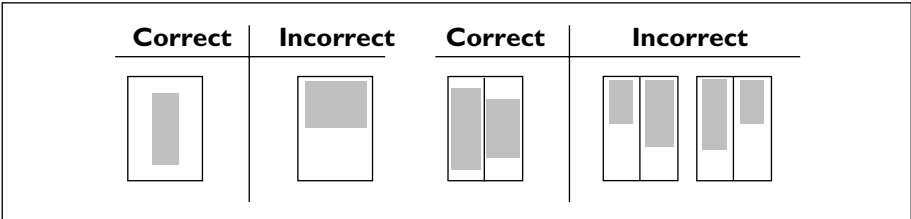


Fig. 4.33 Scope of various collimations

Ensure that the edges of exposed subdivisions do not overlap substantially with metal parts.

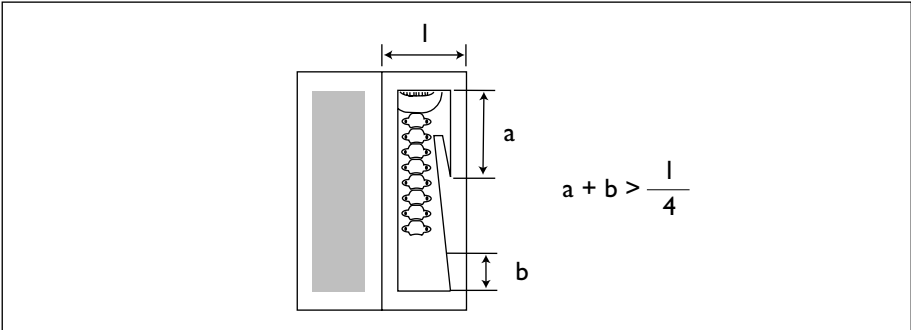


Fig. 4.34 Size ratio of a collimation

Neck exposure information

Observe the positioning when making exposures of the neck.

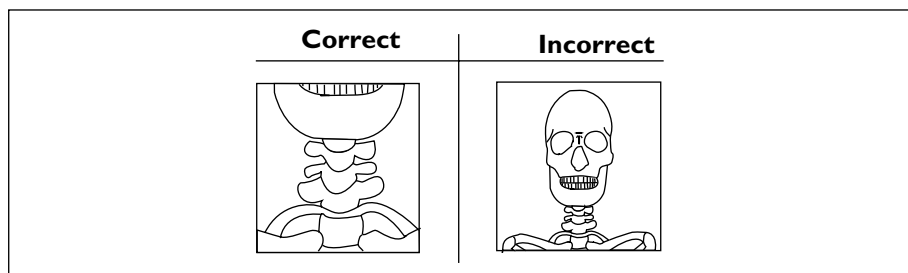


Fig. 4.35 Exposures of the neck

In general, normal exposure mode produces a weak image of the pharynx and larynx, so you should use the 'Fixed' mode for reading the image plate in these cases. This applies to exposures with or without contrast media. With a.p. exposures of pharynx and larynx, position the neck according to the field you wish to expose. It is important to ensure that the neck is centred vertically.

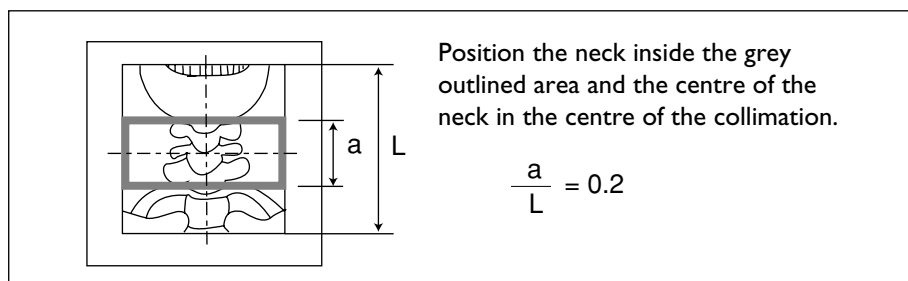


Fig. 4.36 Positioning the neck

If you use lead lettering with exposures of the pharynx and larynx the codes should not be positioned within the grey box.

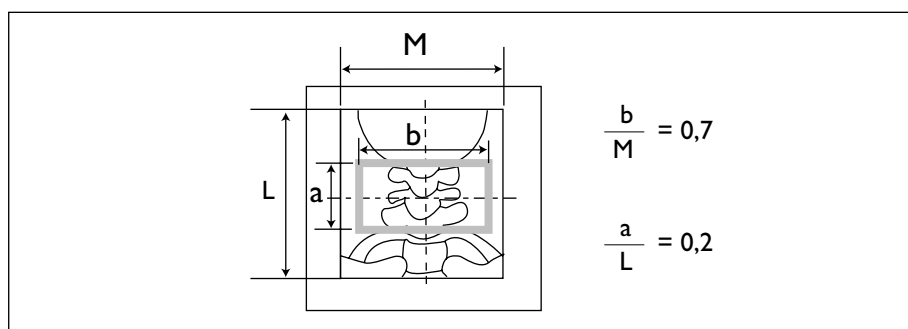


Fig. 4.37 Lead lettering

‘Semi’ mode operation

Always position the region of interest in the centre field of the image plate in ‘Semi’ reading mode. The various measurement fields are allocated to specific exposures.

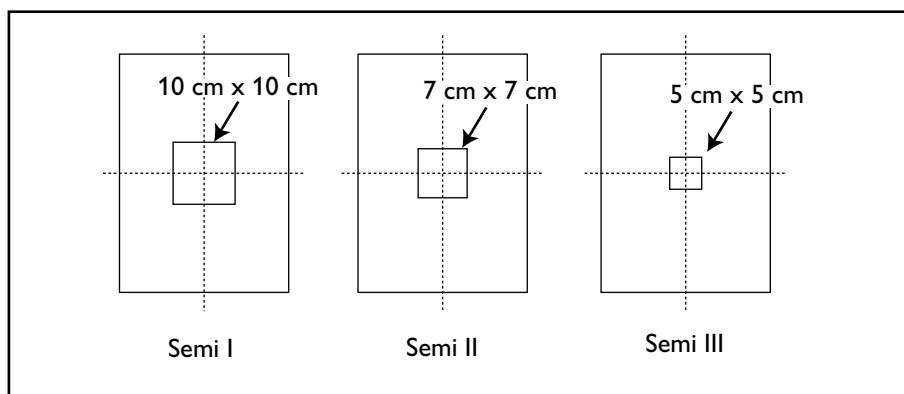


Fig. 4.38 Measurement fields in ‘Semi’ mode

Do not position any irrelevant objects in the centre field. Match the tube voltage to the thickness of the body part that you want to image in the usual way.

‘Fixed’ mode operation

The parameters for reading image plates in ‘Fixed’ reading mode are preset. The exposure conditions are the same as for conventional X-ray procedures.

5 PCR terminal (Rel. 1.5 L3)

5.1 What is the PCR terminal?

The PCR terminal is a central control unit within the PCR system (Philips Computed Radiography). At the operating console, the user enters the patient data and selects the scheduled examination and view. By scanning the barcode, the settings entered are stored for an image plate.

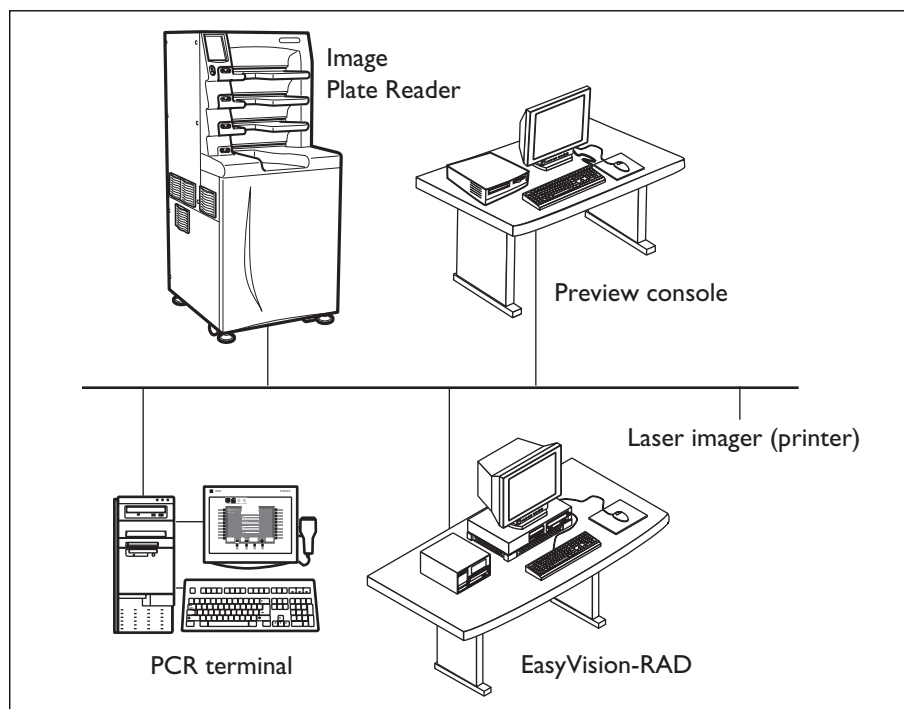


Fig. 5.1 Example of a PCR system

After reading out the image plate in the image reader, the digital picture is automatically processed. The default parameters for printing, storage or transfer of images can be overridden individually at the PCR terminal.

The PCR terminal software provides assistance for various types of work, due to its structured design, according to the complexity of the local system configuration. Thanks to a high degree of automatization in routine operation, customized procedures are simplified. The RIS interface permits automatic acceptance of patient and examination data.

From version 1.5 onwards the PCR terminal supports administration of worklists in accordance with the DICOM Worklist Management standard. In addition the Advanced User Menu is available for advanced users.

5.2 Hardware

Below you will find information on the hardware outfit for the PCR terminal and the PCR system configuration.

5.2.1 PCR terminal system

The PCR terminal consists of a PC, a keyboard and an operating console with barcode reader.

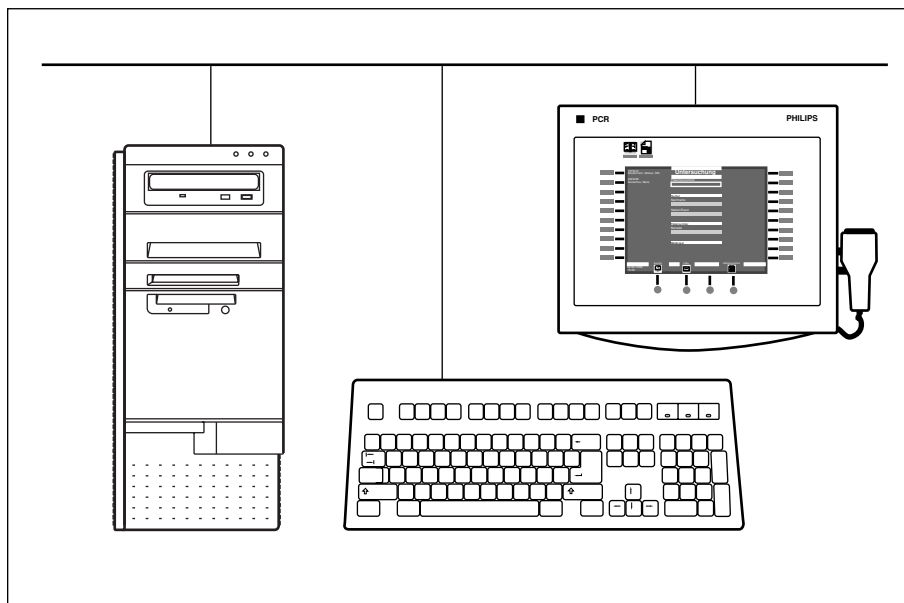


Fig. 5.2 Hardware components of the PCR terminal

5.2.2 Operating console with barcode reader

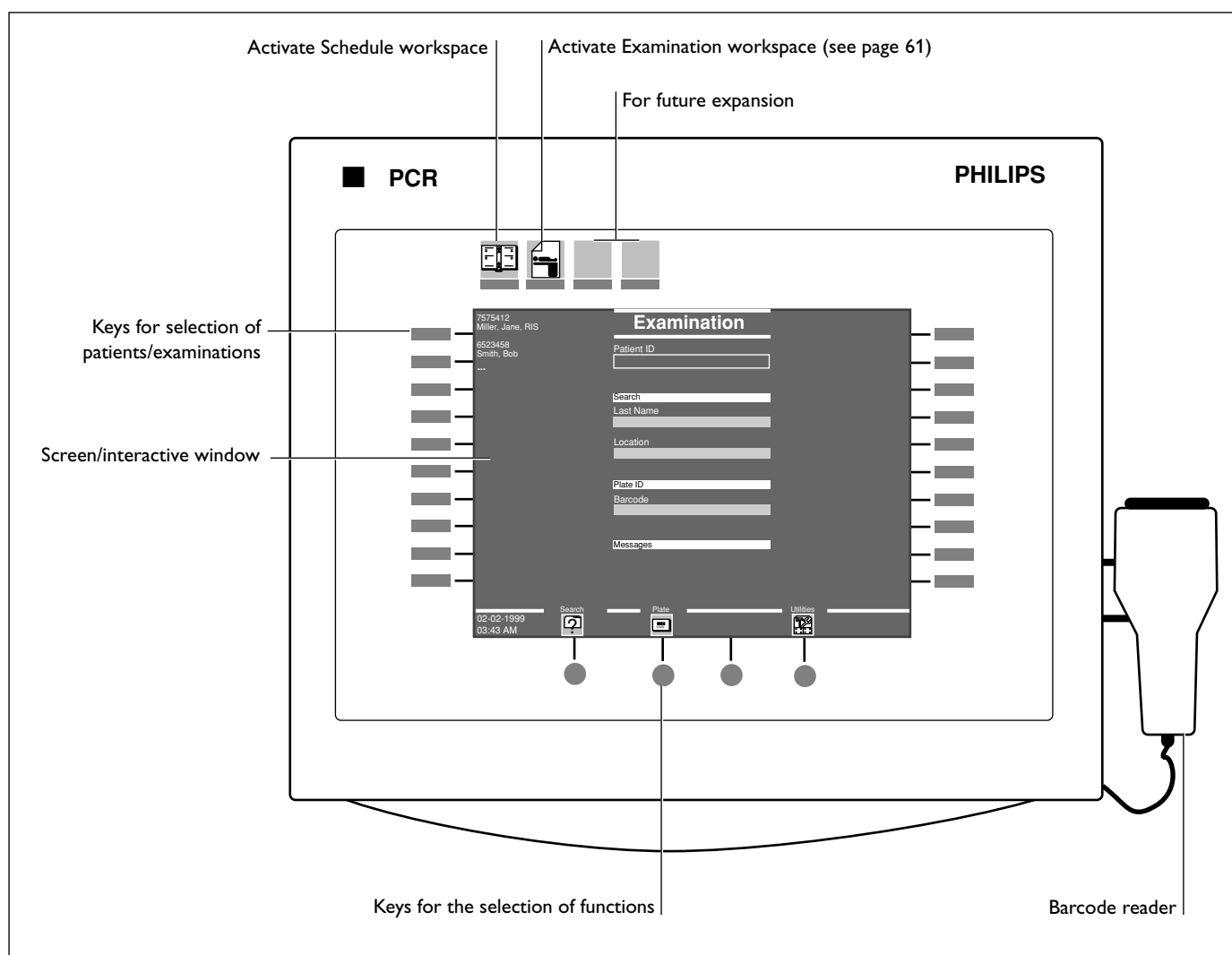


Fig. 5.3 Operating console with barcode reader

5.2.3

PC

The software for the PCR terminal is installed on the PC. The PC controls the data exchange between PCR system components and other data stations within the clinic network. After switching on, operator control is **not** required in routine operation.

Since various makes of PC are used, no illustration is given here. For information about the position of the mains switch refer to the instructions for the PC.

NOTE

The installation of software using the CD-ROM or floppy disk drive may only be performed by Philips Customer Service.

5.2.4 Keyboard

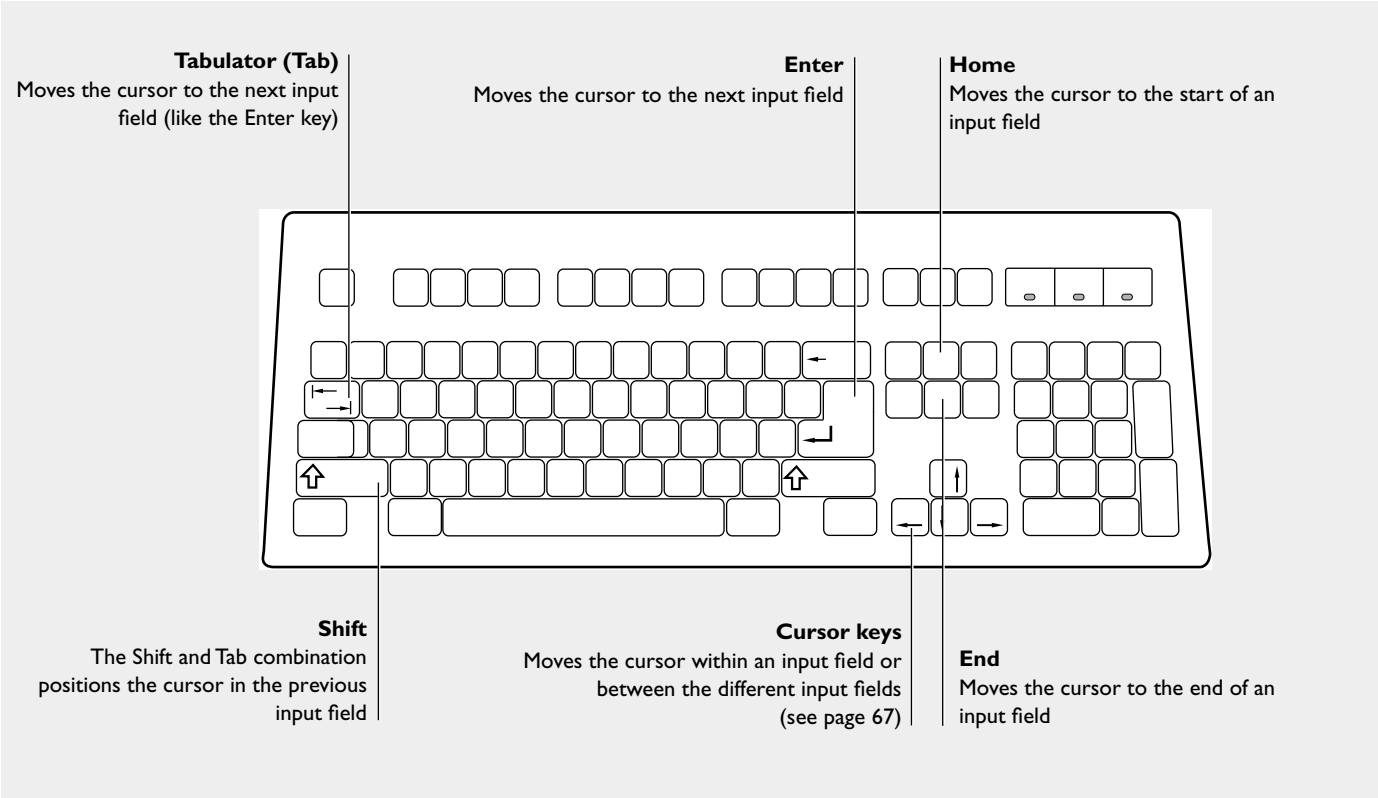


Fig. 5.4 Keyboard

5.3 Software

In the sections below, you will find details regarding the interactive windows and the software design.

5.3.1 Basic information on the interactive windows

Taking the example of the interactive ‘Schedule Exam’ window, the following basic features of interactive windows are described.

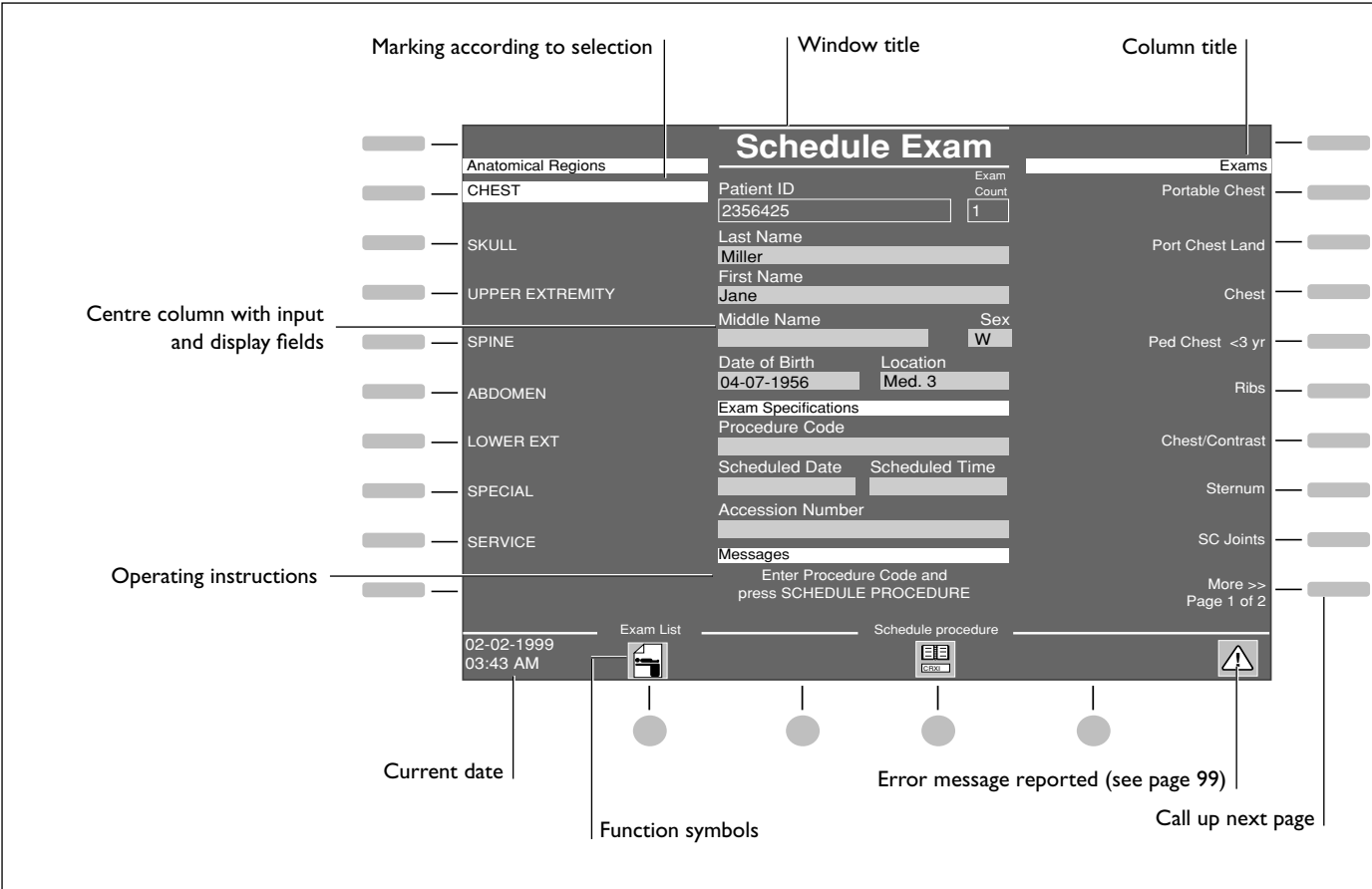


Fig. 5.5 Interactive ‘Schedule Exam’ window

5.3.2 Workspaces

The PCR terminal is divided into two workspaces: Schedule and Examination. In the Examination workspace, you can enter patient data before performing examinations and schedule the examinations (no views). Scheduling examinations is usual with complex PCR systems in which a PCR terminal is installed in the Registration Station. For simple PCR systems, utilisation of the Schedule workspace is not practical. In the Examination workspace, all data can be entered and all settings activated which are necessary for performing examinations.

5.3.3 Overview of the interactive windows

The illustration below shows the major interactive windows which appear in the different workspaces.



Fig. 5.6 Overview of the interactive windows

5.4 Basic working techniques

5.4.1 Switching on the PCR terminal

For further information on this topic refer to the section „PCR System – Switch-on Sequence“ on page 27.

NOTE

For a system with several PCR terminals (Client/Server), first switch on the Server and wait until the Server has completed its starting procedure. You can find out which PCR terminal is operating as the Server from your system administrator.

- 1 Switch on the PCR terminal at the mains switch on the PCR cabinet.
 - The operating system boots the necessary programs. Various displays and messages appear, including the version of software with which your PCR terminal operates.

The PCR terminal is ready for operation when the interactive ‘Examination’ window appears (or ‘Schedule’, depending on the configuration of the respective PCR terminal).

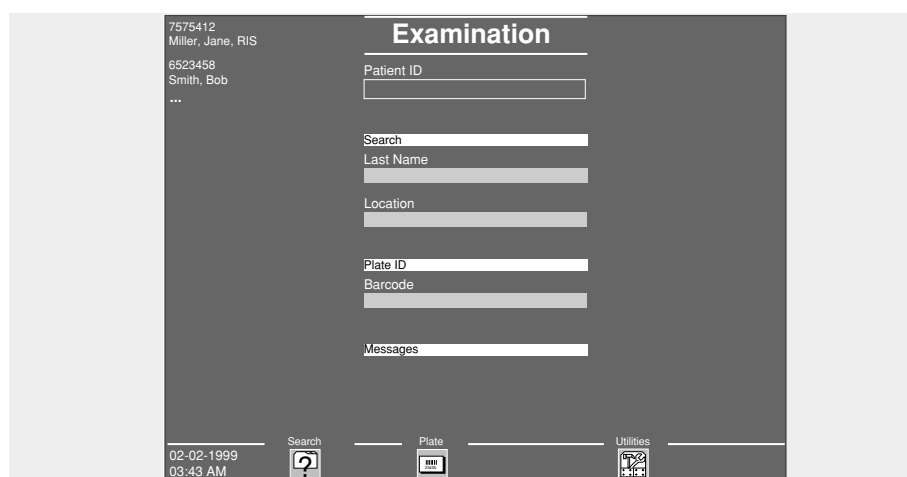


Fig. 5.7 Interactive ‘Examination’ window

5.4.2 Switching off the PCR terminal

For further information on this topic refer to the section „PCR System – Switch-off Sequence“ on page 27.



DANGER

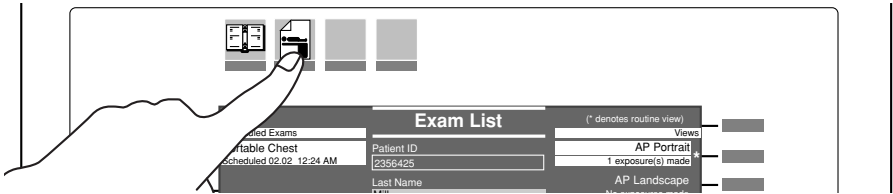
Never switch off the PCR terminal at the mains switch if the PCR application is still loaded. This can lead to errors in the database. When switching off, always proceed in the sequence described below.

NOTE

For a system with several PCR terminals (Client/Server), first switch off the Server. The Client software is then automatically shut down. You can find out which PCR terminal is operating as the Server from your system administrator.



- 1 Press this key to call up the interactive ‘Examination’ window.



NOTE

If the interactive ‘Image Options’ window is on-screen, then press ‘Cancel’ to return to the ‘Exam List’.

- This windows appears:

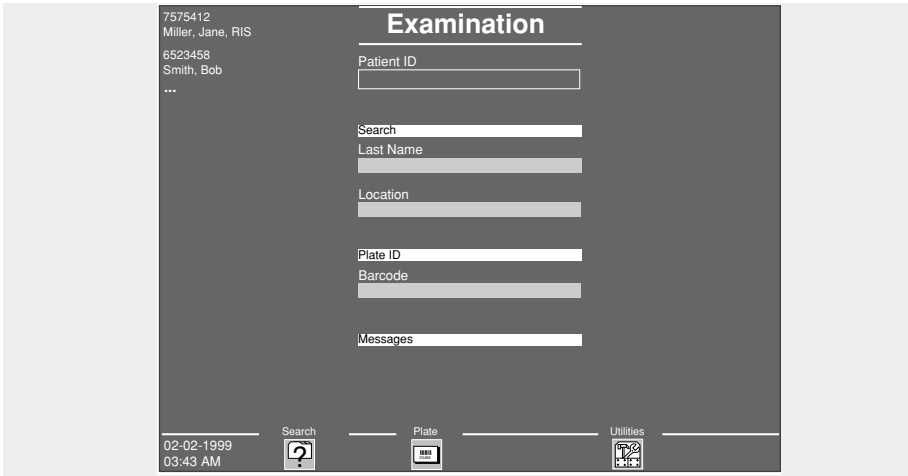
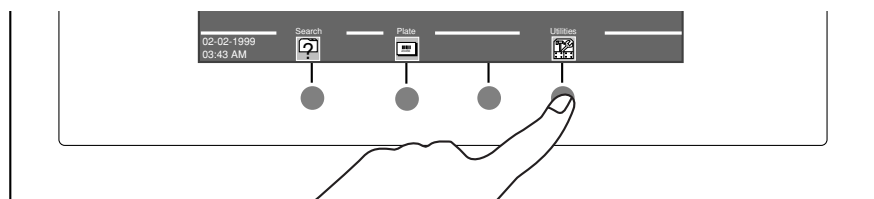


Fig. 5.8 Interactive ‘Examination’ window



2 Press the key under 'Utilities'.



- Then this window appears:

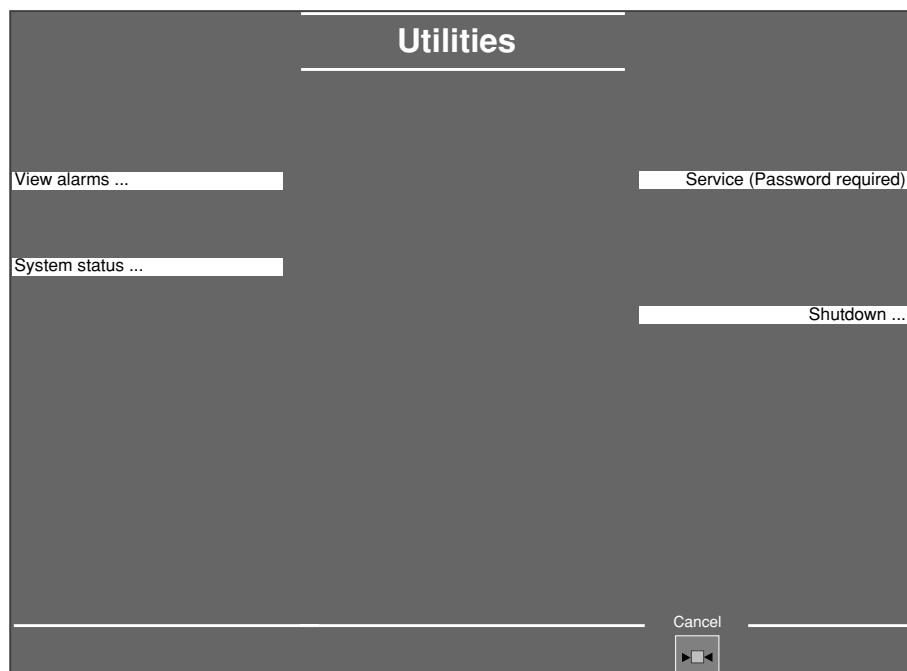


Fig. 5.9 'Utilities' window

3 Press the key next to 'Shutdown'.



- Now this window appears:

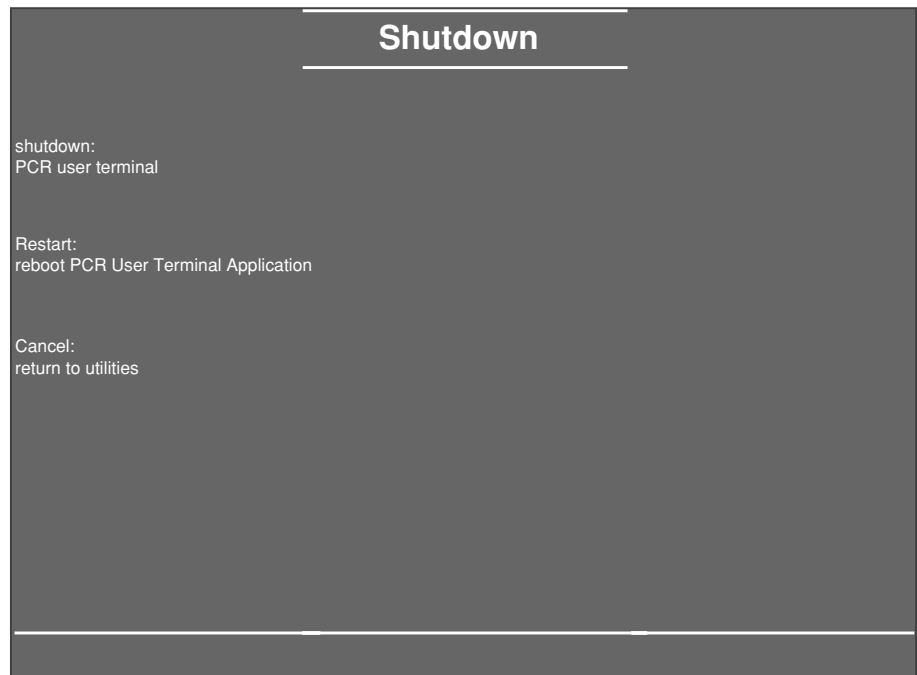


Fig. 5.10 'Shutdown' window

- 4 Press the key next to 'Shut down; PCR user terminal'.



- The operating system begins the shutdown process. Various messages appear on the screen.

Once this process is completed, this message appears:

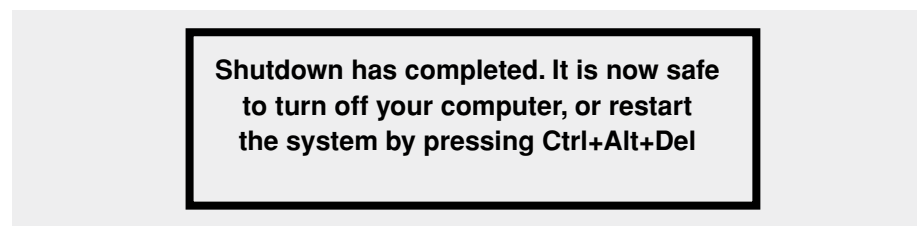


Fig. 5.11 System message

- 5 Switch off the PCR terminal at the mains switch.

Action in the event of problems during the shutdown process

If the computer no longer reacts during the shutdown process due to a program error, proceed as follows.





- 1 One after another, press the keys 'Ctrl', 'Alt' and 'Del' (restart), and wait until the first system messages for restarting appear on the screen.
- 2 Now switch off the computer at the mains switch on the computer cabinet.

In this way, the operating system can complete the necessary writing processes. This is impossible if the computer is separated from the mains during an abortive shutdown process.

5.4.3 Entering data

You can make entries in the input fields of the interactive windows via the keyboard. Complete an entry by pressing the Enter key or the Tab key. Alternatively you can also move the cursor between input fields with the help of the cursor keys. There is no functional difference between these methods, except in the 'Procedure code' field in the interactive 'Schedule Exam' window (see page 72).

Cursor keys

Key	Application
	Move cursor to previous input field (or Shift and Tab)
	Move cursor to next input field
	Move cursor to the start of an input field
	Move cursor to the end of an input field

Obligatory fields

Obligatory fields are input fields within an interactive window which must always be filled in. If this is not done, further progress is inhibited. Obligatory fields are labelled in the respective illustrations with a black arrow (->), input fields with optional entry are labelled with a white arrow.

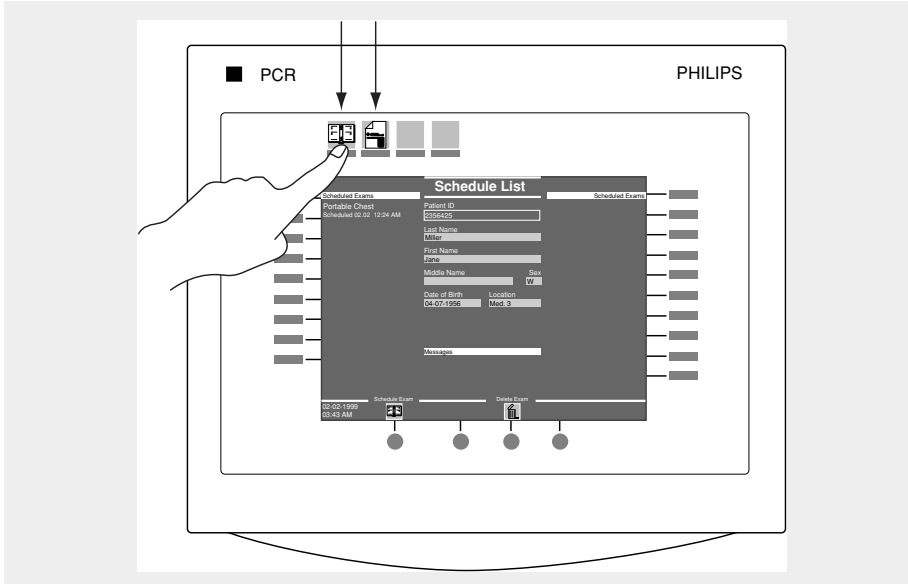
Signals

If you enter more characters in an input field than are intended for this, a signal is heard. Abbreviate the entry if possible.

5.4.4 Selecting workspaces

You can choose between the Schedule and Examination workspaces (see page 61).

- 1 Press one of these keys.



Key	Application
	Activate Schedule workspace
	Activate Examination workspace

NOTE *If the interactive ‘Image Options’ window is on-screen in the Examination workspace, then press ‘Cancel’ first to return to ‘Exam List’.*

In the Examination workspace, the interactive ‘Examination’ window appears first, while ‘Schedule’ appears first in the Schedule workspace.

5.4.5 Key operation

To select examinations or other selection items, press the appropriately assigned key.



Fig. 5.12 Key operation

The selection is highlighted (marked), and a function is performed.

5.5 Scheduling examinations

NOTE *This chapter is only of interest to you if examinations are scheduled beforehand in your department (complex PCR systems with division of labour).*

In the following you will find out how to enter new patient data and schedule examinations at the PCR terminal. This is done in the Schedule workspace in the interactive ‘Schedule’, ‘Schedule Exam’ and ‘Schedule List’ windows.

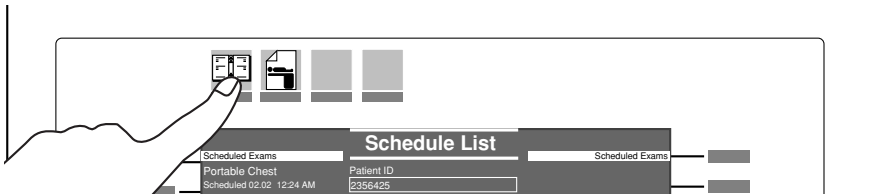
5.5.1 Entering patient data and examination

Patient data and examinations are entered manually in the PCR system or accepted from a connected RIS (patient data cannot then be changed).

Entering data



- 1 Press this key to activate the Schedule workspace and call up the interactive ‘Schedule List’ window.



- Then this window appears:

Patient list

Patients with examinations in ‘Scheduled’ or ‘In process’ status (RIS = data taken from the RIS, or worklist according to the DICOM Worklist Management standard)

7575412
Miller, Jane, RIS

6523458
Smith, Bob

...

Schedule

Patient ID

Search

Last Name

Location

Plate ID

Barcode

Messages

02-02-1999
03:43 AM

Search

Plate

Utilities

➡ = Obligatory field

➡ = Optional entry

Fig. 5.13 Interactive ‘Schedule’ window

- 2 Enter a new patient number, or search for patient data with the help of the Search function (see page 83).
- 3 Press the Enter key.
 - Then this window appears:

Schedule Exam

Anatomical Regions

CHEST

SKULL

UPPER EXTREMITY

SPINE

ABDOMEN

LOWER EXT

SPECIAL

SERVICE

Exams

Portable Chest

Port Chest Land

Chest

Ped Chest <3 yr

Ribs

Chest/Contrast

Sternum

SC Joints

Patient ID: 2356425

Last Name

First Name

Middle Name

Date of Birth

Location

Exam Specification

Procedure Code

Scheduled Date

Scheduled Time

Accession Number

Messages

Exam Count: 0

Sex

More >> Page 1 of 2

02-02-1999 03:43 AM

Schedule List

Schedule Procedure

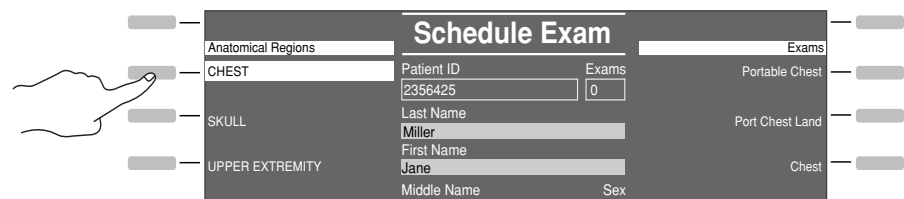
Legend:
 → = Obligatory field
 → = Optional entry

Fig. 5.14 Interactive 'Schedule' window

- 4 Enter the data available to you. Switch to the next entry field by pressing the Enter key or the Tab key on the keyboard.

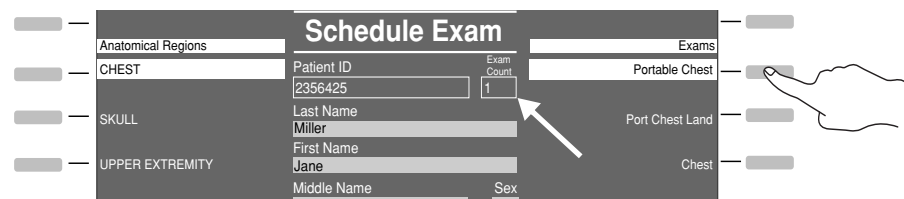
Location	Entries in this field also serve as Search criteria and are relevant for automatic transmission of images.
Procedure code	(see page 72)
Accession number	The accession number is an administrative number which can either be taken from the RIS or entered here manually. It serves to label examination data.
Scheduled Date, Scheduled Time	In these fields, you can specify a particular time for the examination. If you do not fill in these fields, the entry date and time appear as the scheduled appointment in the 'Schedule List'.

5 Then select the body region to be examined in the left column.



- Now the examinations suitable for the selected body region appear in the right column.

6 Select the scheduled examination.



- In the 'Exam Count' field, the scheduled examinations for the current patient are automatically counted.

7 Select all further examinations intended for this patient in the same way.

NOTE You can schedule a maximum of 16 examinations per patient.

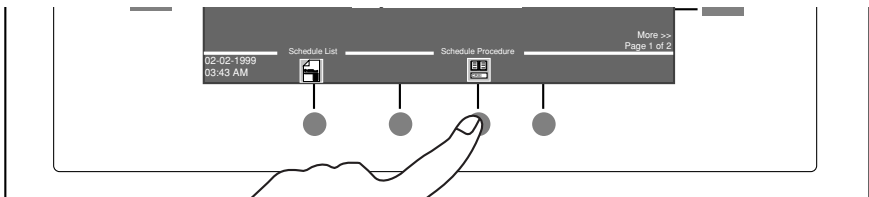
Enter procedure code

Specific examinations are encoded in a procedure code. If you use a procedure code, manual selection of examinations is then unnecessary. Procedure codes are provided by your hospital and are stored in the PCR system at the time of installation.

1 Enter the procedure code in the interactive 'Schedule Exam' window.



2 Press the Enter key to move the cursor into the "Scheduled Date" field or press the key under "Schedule Procedure" to open the interactive "Exam List" window.

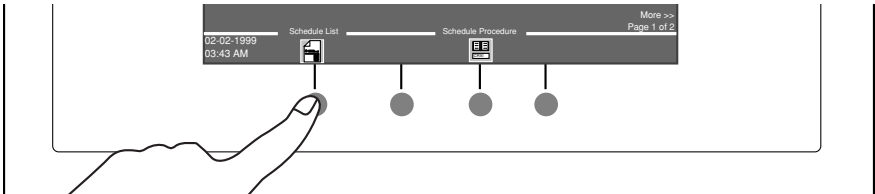


5.5.2 Checking entered examinations

The scheduling process is completed with a check of data entered in the interactive ‘Schedule List’ window.



- 1 In the interactive ‘Schedule Exam’ window, press the key under ‘Schedule List’.



- Then this window appears:

Scheduled exam

Schedule List

Scheduled Exams

Portable Chest

Scheduled 02.02 12:24 AM

Patient ID

2356425

Last Name

Miller

First Name

Jane

Middle Name

Sex

W

Date of Birth

04-07-1956

Location

Med. 3

Messages

02-02-1999

03:43 AM

Schedule Exam

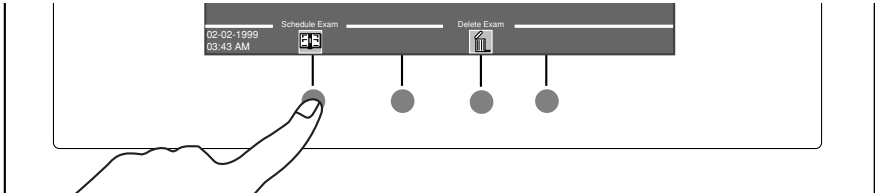
Delete Exam

Fig. 5.15 Interactive ‘Schedule List’ window

- 2 Check the examinations indicated in the left column and, if applicable, in the right column.

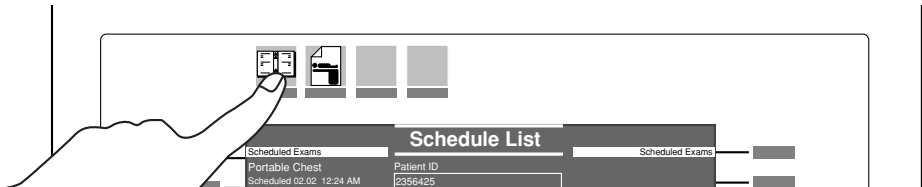


If you would like to schedule another examination for the **current patient**, then change to the interactive ‘Schedule Exam’ window. To do this, press the button under ‘Schedule Exam’.





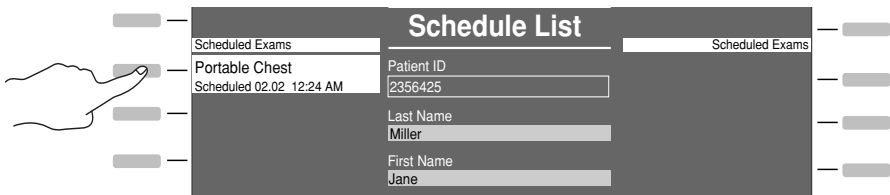
If you would like to enter data for a **new patient**, then change to the interactive ‘Schedule’ window. To do this, press this key.



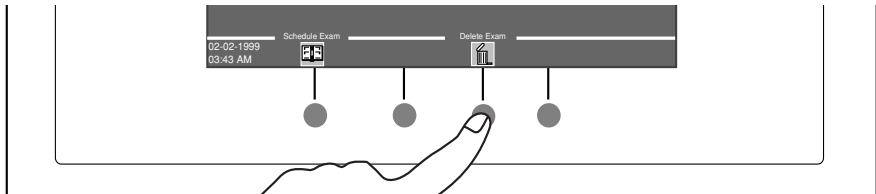
5.5.3
Deleting scheduled examinations

In the interactive ‘Schedule List’ window, you can delete examinations that are no longer valid or have been incorrectly entered.

- 1
Select the examination to be deleted.



- 2
Press the key under ‘Delete Exam’.



The examination is deleted.

5.6 Performing examinations

The following sections describe how to perform examinations. This is done in the Examination workspace using the interactive 'Examination', 'Schedule Exam', 'Exam List' and 'Image Options' windows.

The sequence of individual working steps may vary according to the system configuration and the working technique in your clinic. Philips recommends the standard procedure depicted here for safe performance of examinations.

NOTE

Work procedures different from those described here involve the risk of incorrect assignment of entered data and of the actual finished exposure.

5.6.1 Before the X-ray exposure

The figure below shows an overview of working steps up to X-ray exposure with and without scheduled examinations.

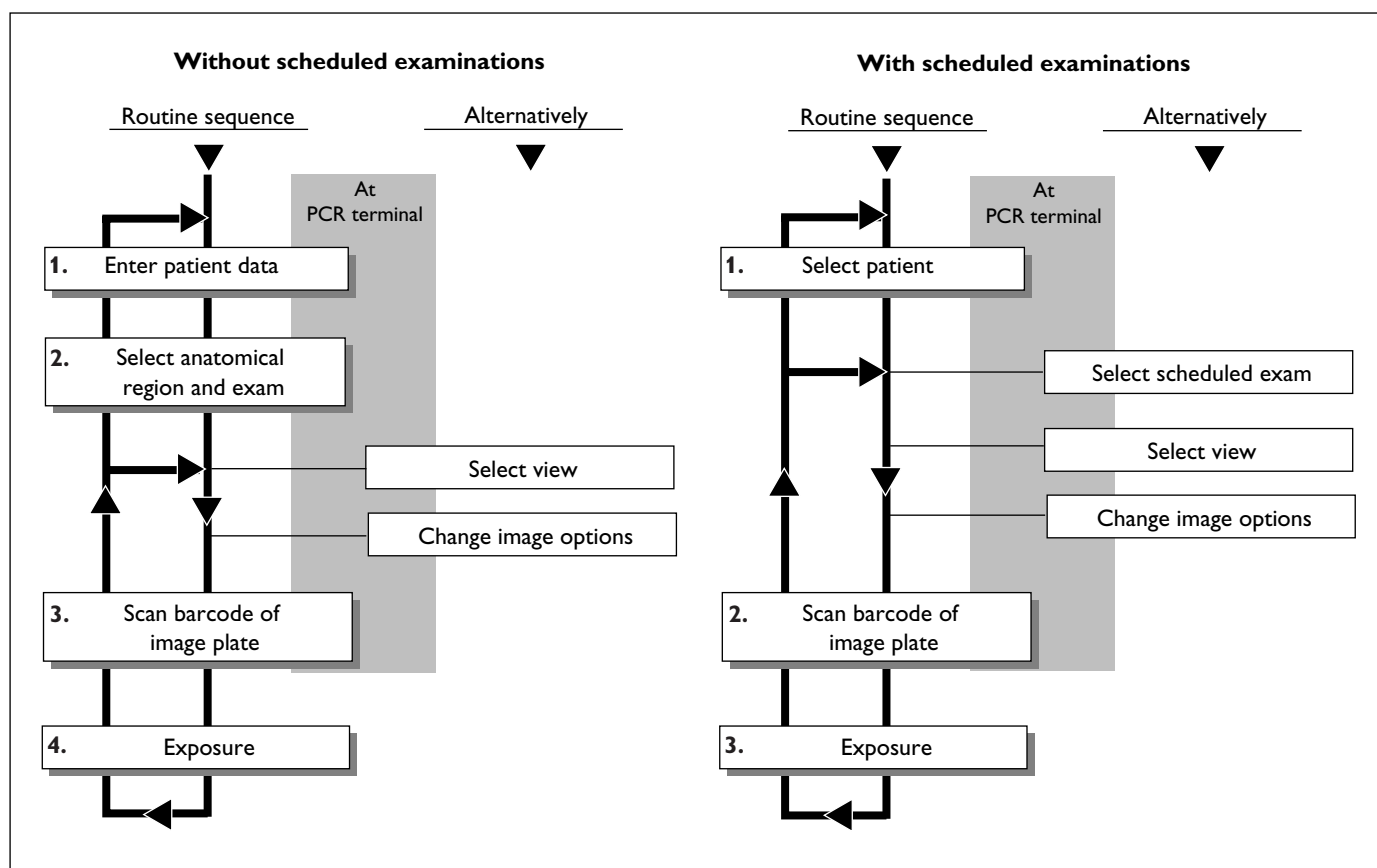
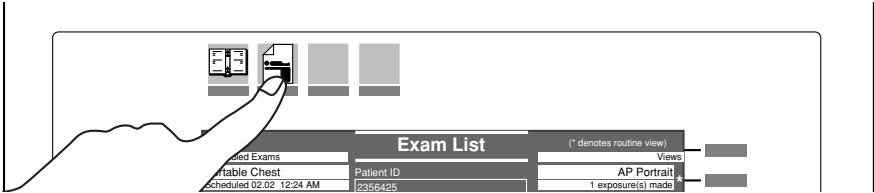


Fig. 5.16 Work procedures before exposure

5.6.2
Without scheduled examinations



- Press this key to activate the Examination workspace and call up the interactive ‘Examination’ window.



NOTE
If the interactive ‘Image Options’ window is on-screen, then press ‘Cancel’ first to return to ‘Exam List’.

- Then this windows appears:

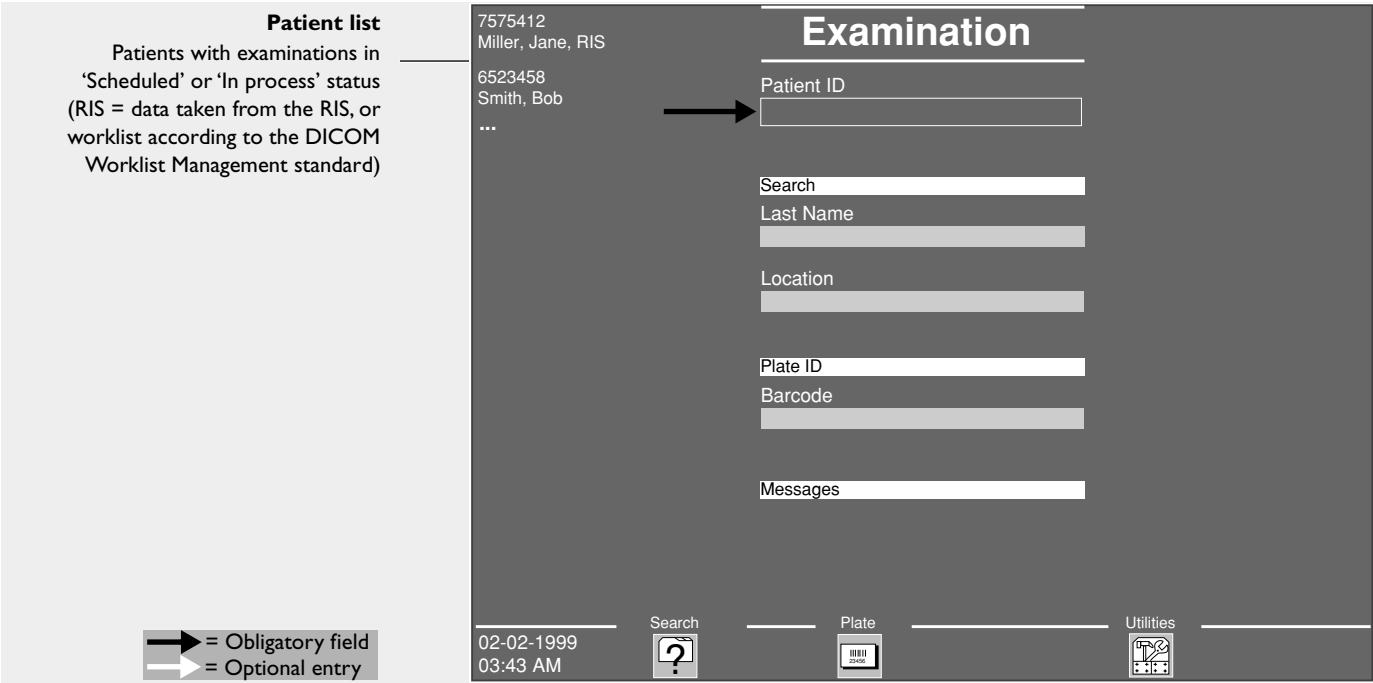


Fig. 5.17 Interactive ‘Examination’ window

- Enter a new patient number, or search for patient data with the help of the Search function (see page 83).
- Press the Enter key.

- Now this window appears:

Schedule Exam

Anatomical Regions

CHEST

SKULL

UPPER EXTREMITY

SPINE

ABDOMEN

LOWER EXT

SPECIAL

SERVICE

Patient ID: 2356425

Last Name

First Name

Middle Name

Sex

Date of Birth

Location

Exam Specifications

Procedure Code

Scheduled Date

Scheduled Time

Accession Number

Messages

Exam Count: 0

02-02-1999 03:43 AM

Exam List

Schedule procedure

Legend:
 —→ = Obligatory field
 - - -> = Optional entry

Fig. 5.18 Interactive 'Schedule Exam' window

- 4 Enter the data available to you. Switch to the next entry field by pressing the Enter key or the Tab key on the keyboard.

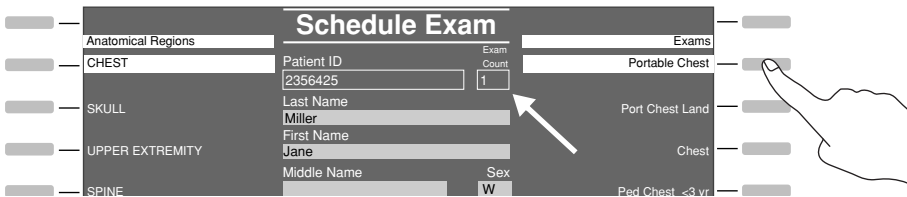
Location	Entries in this field also serve as Search criteria and are relevant for automatic transmission of images.
Procedure code	(see page 72)
Accession number	The accession number is an administrative number which can either be taken from the RIS or entered here manually. It serves to label examination data.
Scheduled Date, Scheduled Time	In these fields, you can specify a particular time for the examination. If you do not fill in these fields, the entry date and time appear as the scheduled appointment in the 'Schedule List'.

5 Select the body region to be examined in the left column.



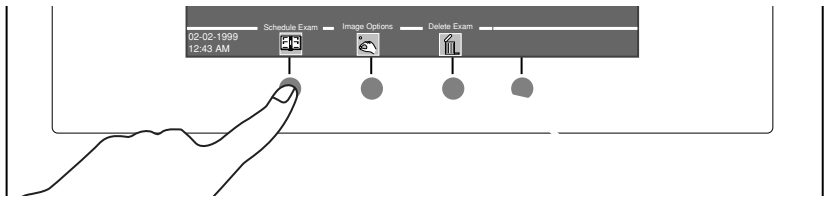
- Now the examinations suitable for the selected body region appear in the right column.

6 Select the examination that you would like to perform.



- In the 'Exam Count' field, the selected examinations are automatically counted.

7 Press the key under 'Exam List'.



- Then this window appears:

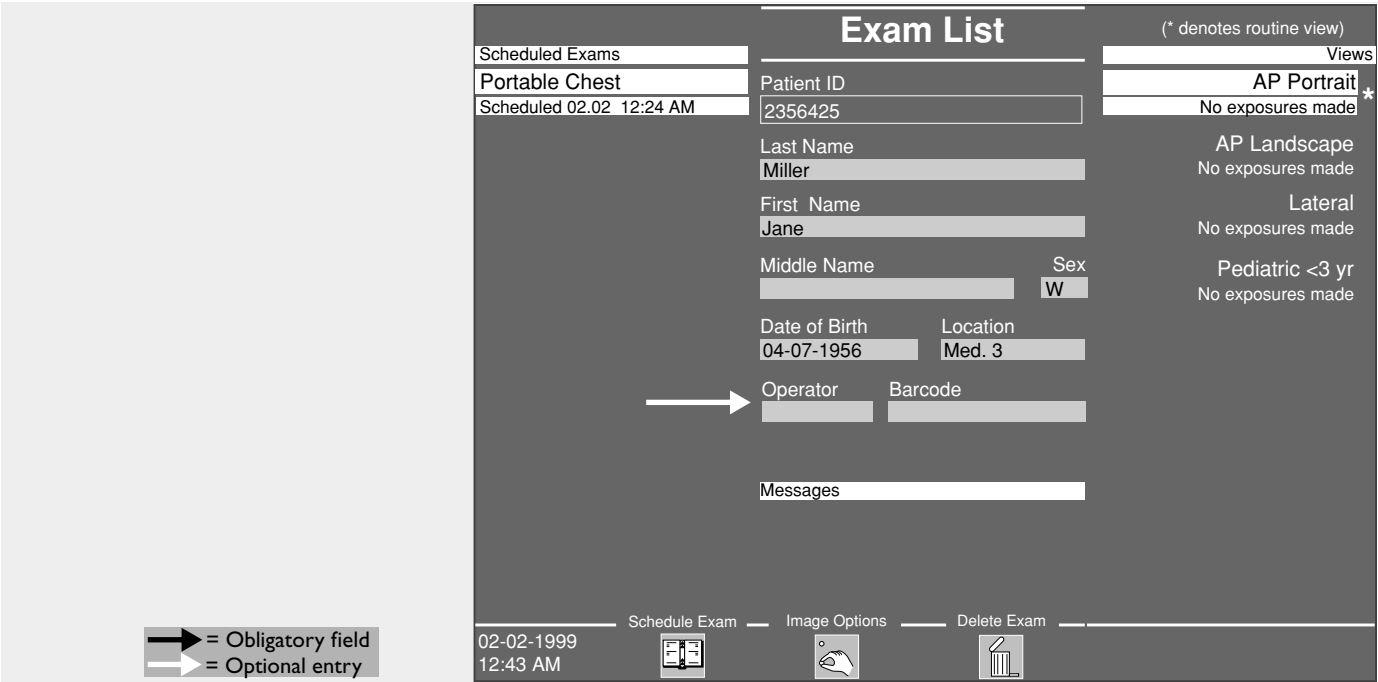


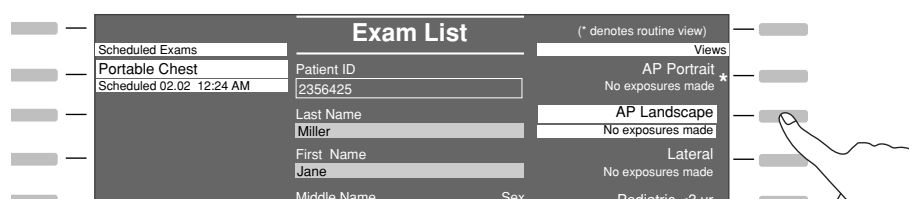
Fig. 5.19 Interactive ‘Exam List’ window

The views for the selected examination appear in the right column. The first **routine view** is always automatically marked. The cursor is in the 'Barcode' field.

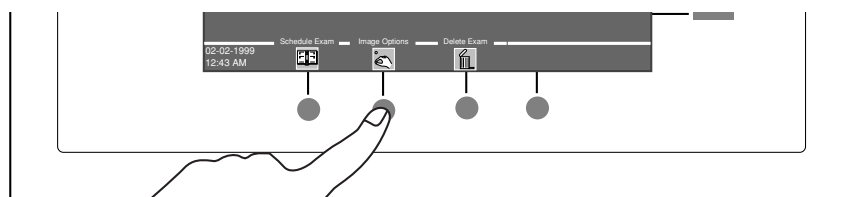
- 8 To enter the name of the operator, you must move the cursor from the 'Barcode' field to the 'Operator' field. To do this, press the cursor key on the keyboard (↑).
- 9 Enter your name (maximum 15 characters) and then press the cursor key (↓), to reposition the cursor in the 'Barcode' field.

Entries in the 'Operator' field also remain stored for subsequent examinations. They appear on the film. The next operator overrides the previous entry.

- 10 If necessary, select a different view.



- 11 If necessary, change the image options (see page 85).



- 12 Scan the barcode on the image plate (cassette) in the interactive 'Exam List' window.

NOTE

Make certain that the cursor is in the 'Barcode' field before scanning the barcode. Otherwise the barcode will not be accepted by the system.

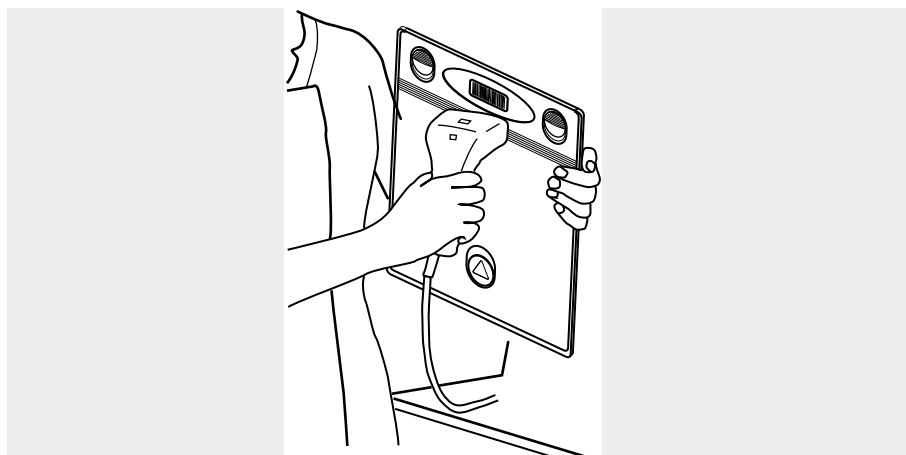


Fig. 5.20 Scanning the barcode on the image plate

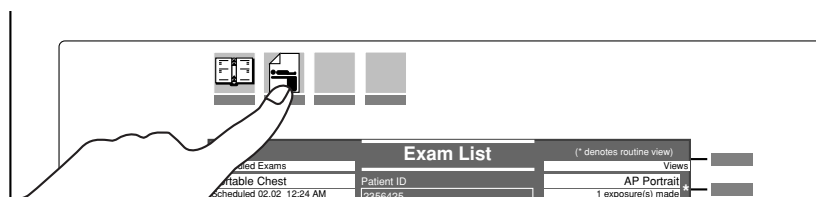
By scanning the barcode, settings for the image plate are stored in the PCR system. The image plate must be exposed at the diagnostic unit in accordance with these settings to ensure correct image processing. If it is used for a different view or a different patient, the settings must be overridden before reading out the image data. For further information on this topic refer to the section „Overriding settings“ on page 94.

- 13** Now make the X-ray exposure.

5.6.3 With scheduled examination



- 1 Press this key to activate the Examination workspace and to call up the interactive 'Examination' window.



NOTE

If the interactive 'Image Options' window is on-screen, press 'Cancel' first to return to 'Exam List'.

- Then this windows appears:

Patient list

Patients with examinations in 'Scheduled' or 'In process' status (RIS = data taken from the RIS, or worklist according to the DICOM Worklist Management standard)

7575412
Miller, Jane, RIS

6523458
Smith, Bob

...

Examination

Patient ID

Search

Last Name

Location

Plate ID

Barcode

Messages

02-02-1999
03:43 AM

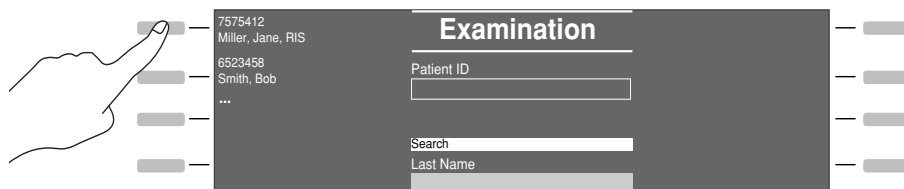
Search

Plate

Utilities

Fig. 5.21 Interactive 'Examination' window

- 2 Select the patient from the patient list in the left column or, if applicable, right column, or use the Search function (see page 83).



- After selecting a patient, this window appears:

Scheduled Exams

Portable Chest

Scheduled 02.02 12:24 AM

Exam List

Patient ID

2356425

Last Name

Miller

First Name

Jane

Middle Name

Date of Birth

04-07-1956

Location

Med. 3

Operator

Barcode

Sex

W

Messages

(* denotes routine view)

Views

AP Portrait *

No exposures made

AP Landscape

No exposures made

Lateral

No exposures made

Pediatric <3 yr

No exposures made

02-02-1999

12:43 AM

Schedule Exam

Image Options

Delete Exam

Fig. 5.22 Interactive ‘Exam List’ window

The views for the selected examination appear in the right column. The first **routine view** (*) is always automatically marked. The cursor is in the ‘Barcode’ field.

The further working procedure is identical to that described in the ‘Without prior scheduling’ section. Continue with operating **step 8** (see page 79).

5.6.4 Searching for a patient

The Search function makes finding patient data easier. In addition, you can find patient data that is not given in the patient list. With the Search function, you can find all patient data stored in the PCR system regardless of the examination status. In the patient list you will find patients with examinations in 'Scheduled' or 'In process' status.

NOTE

Patient data with examinations in the 'Completed' status are deleted after a specific period of time determined during installation.

You will find the Search function in the interactive 'Schedule' and 'Examination' windows.

The screenshot displays the 'Examination' window interface. On the left, a 'Patient list' sidebar contains the text: 'Patients with examinations in 'Scheduled' or 'In process' status (RIS = data taken from the RIS, or worklist according to the DICOM Worklist Management standard) 'Search' group field'. The main window area is titled 'Examination' and contains several input fields: 'Patient ID' (with a dropdown arrow), 'Search' (with a dropdown arrow), 'Last Name' (with a dropdown arrow), 'Location' (with a dropdown arrow), 'Plate ID' (with a dropdown arrow), 'Barcode' (with a dropdown arrow), and 'Messages' (with a dropdown arrow). At the bottom of the window, there is a status bar showing the date '02-02-1999' and time '03:43 AM', along with three icons: 'Search' (a question mark), 'Plate' (a plate icon), and 'Utilities' (a gear icon).

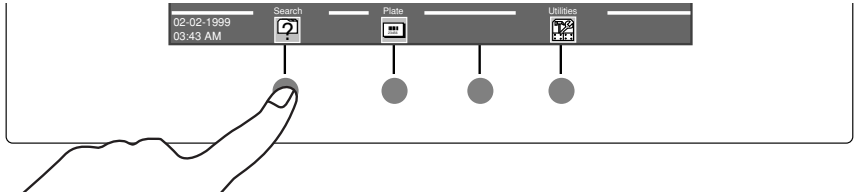
Fig. 5.23 Interactive 'Examination' window

Searching for a patient

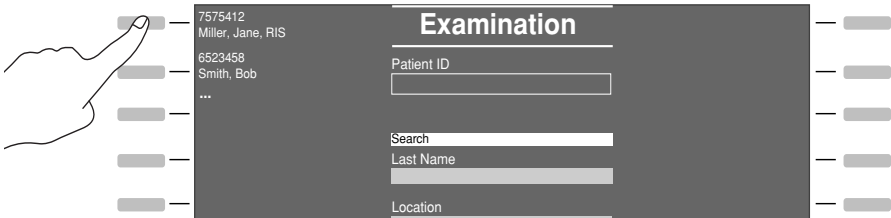
- 1 Enter the surname of the patient in the ‘Search’ group field, or enter his/her location in the ‘Location’ field. You may enter the first one or more letters and a wildcard character (*) (e.g. ‘Me*’).



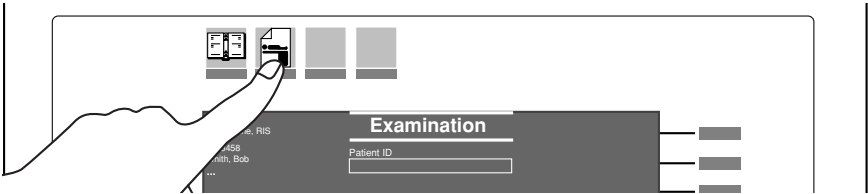
- 2 Press the key under ‘Search’, or



- 2 press the Enter key on the keyboard.
 - The Search result appears in the left column and, if applicable, in the right column of the interactive window.
- 3 Select the patient required.



If you would like to return to the display of the entire patient list after displaying the Search result, then press this key.

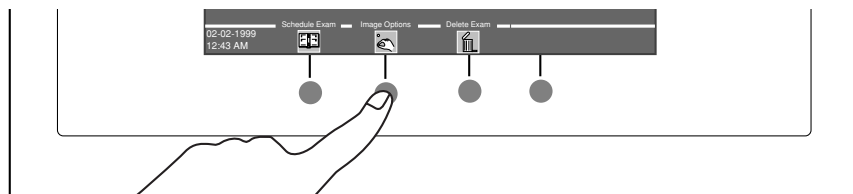


5.6.5 Setting image options

You can set a specific image processing in the interactive 'Image Options' window for an **individual** view or for **all** views of an examination.



- 1 Do not scan the barcode from the image plate in the 'Exam List', but instead press the key under 'Image options'.



- Then this windows appears:

Current examination 'Portable Chest' | Current view 'AP Portrait'

Image Options		View:
Exam: Portable Chest	Patient ID: 2356425	AP Portrait
Film Output: +	Last Name: Miller	AUTO Reader Mode
Number of Copies: 1	First Name: Jane	NORMAL Sensitivity
-	Middle Name:	Annotation
Film Format ... 1on1-P-rot	Sex: W	NORMAL Matrix
Storage/Export	Date of Birth: 04-07-1956	YES Autoshuttering
OD Store: NO	Location: Med. 3	
Destination(s) ...	Exam Study/Accession Number:	
	Operator: Barcode:	Image Plate Orientation
	Messages:	Orientation:
		Mirror:
		Rotate 180°:
	Cancel	
	02-02-1999 12:43 AM	

= Obligatory field
 = Optional entry

Fig. 5.24 Interactive 'Image Options' window

- 2 In the left column, choose the settings to be applied to **all views** of the examination indicated. In the right column, choose the settings only for the **indicated view**.

Left column	
Examination	Name of the selected examination
Number of copies	Set the number of films to be printed per exposure; '0' = no automatic film output selected
Film Format ...	Select film format (see page 88)
OD Store	Select 'Yes' or 'No' storage (Insert image plate in the image plate disk drive on the EasyVision RAD computer)
Destination(s) ...	Send examination to a destination (see page 89)
Centre column (All fields have only a display function)	
Right column	
View	Name of the selected view
Reader Mode	Select reader mode: 'Auto', 'Semi', 'Fix', 'Manual' (see 'System information' module), Manual (see page 171)
Sensitivity	Set sensitivity for the reading process: 'Normal', 'High1', 'High2'. Select 'Normal' in routine operation; 'High1' and 'High2' are recommended for applications with a low radiation dose. However, higher sensitivity increases image noise.
Annotation	Enter annotation (see page 87)
Matrix	Select matrix for transfer: 'Normal' or 'High'. If it has been set by Customer Service, 'Normal' transfers a matrix with low resolution (2k) to EasyVision. With 'High', a high-resolution matrix (4k) is transferred. This can improve the signal-to-noise ratio for some exposures.
Autoshuttering	Switches the automatic diaphragm control facility on or off: 'No' or 'Yes'

- 3 Scan the barcode on the image plate (cassette).

NOTE

Make certain that the cursor is in the 'Barcode' field before scanning the barcode. Otherwise the barcode will not be accepted by the system.

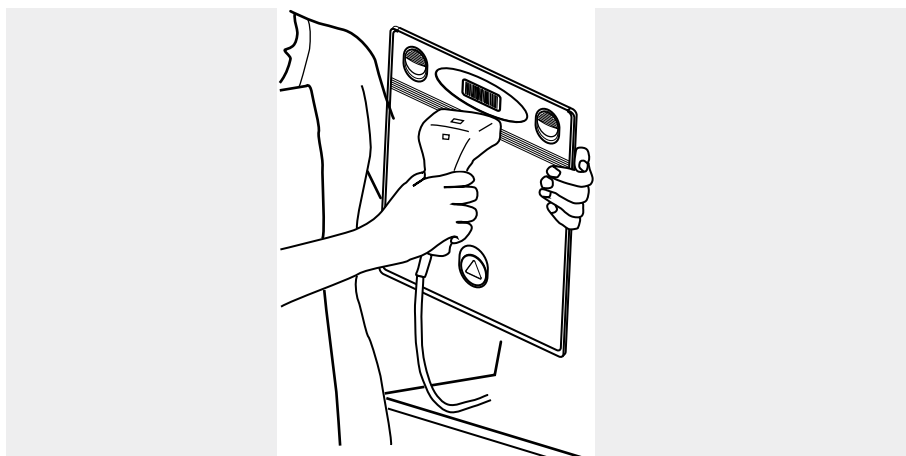


Fig. 5.25 Scanning the barcode on the image plate

By scanning the barcode, the settings for the image plate are stored in the PCR system. If you wish to change these settings before reading out, you must then override them. For further information on this topic refer to the section „Overriding settings“ on page 94.

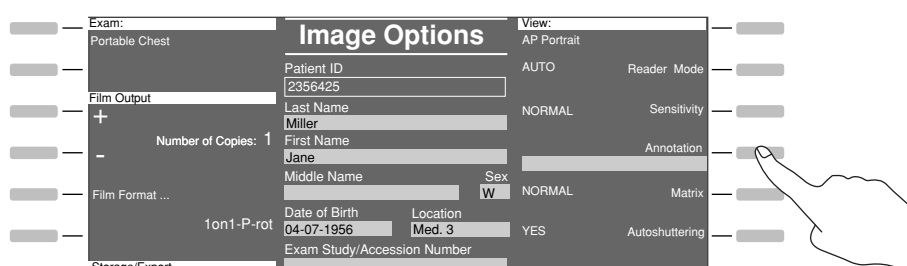
- 4 Now make the X-ray exposure.

Entering an annotation

You can store an annotation regarding the view indicated in the interactive 'Image Options' window (max. 64 characters); it is then recorded on the film (as of EasyVision 2.3 Level 5).

Entering an annotation

- 1 Press the key next to 'Annotation'.



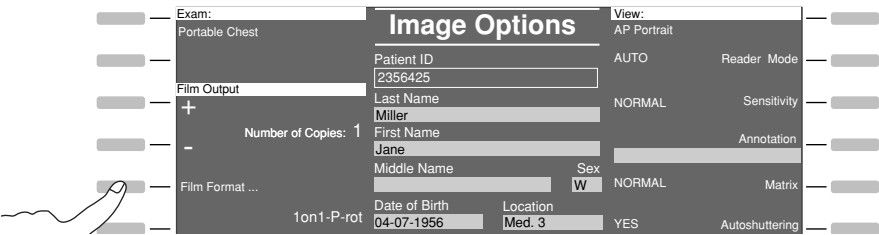
- The cursor jumps from the 'Barcode' field to the 'Annotation' field.
- 2 Enter the required annotation.
 - 3 Then press the Tab key to reposition the cursor in the 'Barcode' field.

Selecting the film format

You can select a particular film format for a view. With film formats intended for several views on one film, such as ‘2on1-L’, the PCR system automatically places the **routine views** on one film. If you would like to combine other views on one film, you must do this at your EasyVision RAD workstation.

Selecting a film format

- 1 In the interactive ‘Image Options’ window, press the key next to ‘Film Format...’.



- Then this window appears:

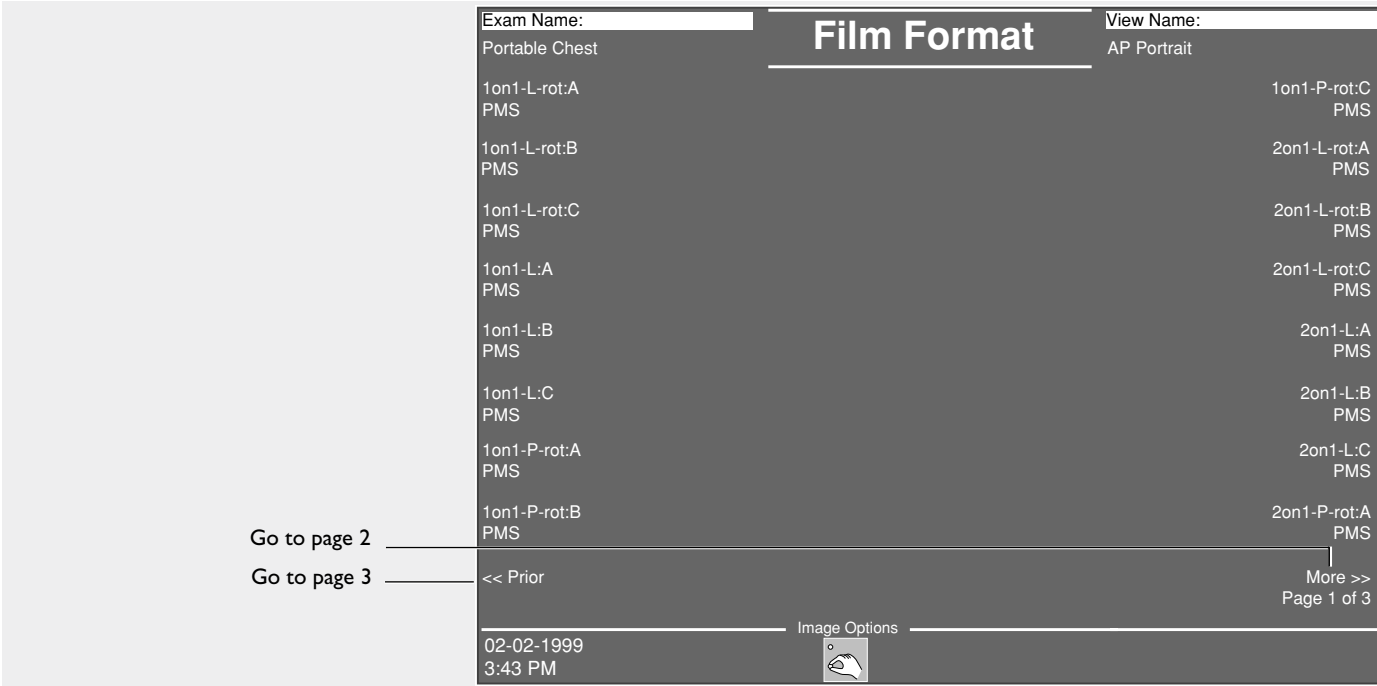


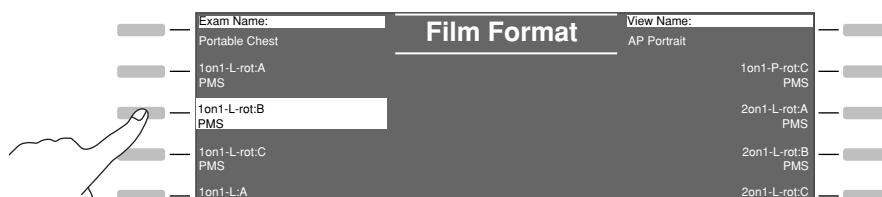
Fig. 5.26 ‘Film Format’ window

NOTE

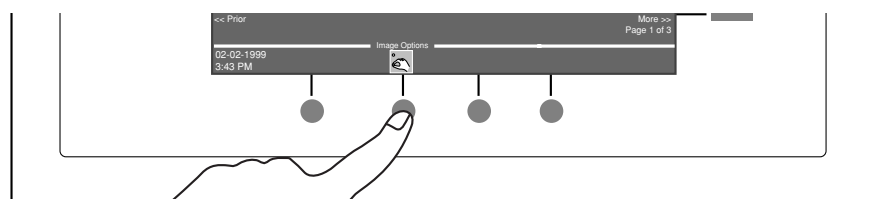
- In the example shown here, all film formats appear in triplicate, i.e. once each with the printer codes A, B and C. The printer codes are used to automatically control various printers or print media. The printer codes are specified on the EasyVision RAD workstation, as are the comments (PMS). You can find further information on this in the Instructions for Use for your EasyVision RAD workstation.

- **Not all film formats which are available on the EasyVision RAD workstation appear on the PCR terminal. Film formats for manual printing, such as the zoom formats, are only available at the EasyVision RAD workstation.**

- 2 Select the required film format for the **indicated view**.



- 3 Then press the key under 'Image Options'.



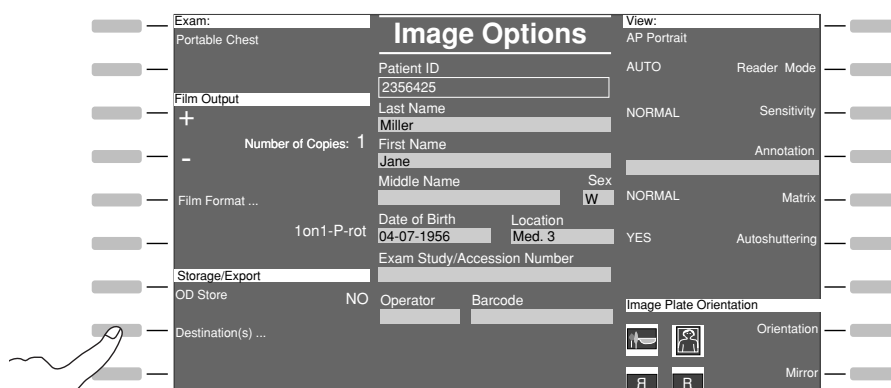
- The interactive 'Image Options' window then appears.

- 4 Scan the barcode on the image plate (cassette).

Select destinations

You can select a particular destination for a view.

- 1 In the interactive 'Image Options' window, press the key next to 'Destination(s)...'.



- This window appears:

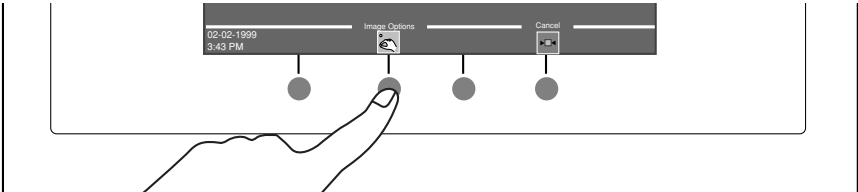


Fig. 5.27 'Export Destination' window

- 2 Select the required destination for the **indicated view**.



- 3 Then press the key under 'Image Options'.



- The interactive 'Image Options' window appears.
- 4 Scan the barcode on the image plate (cassette).

5.6.6 After the X-ray exposure

The figure below shows the procedure after the X-ray exposure has been made.

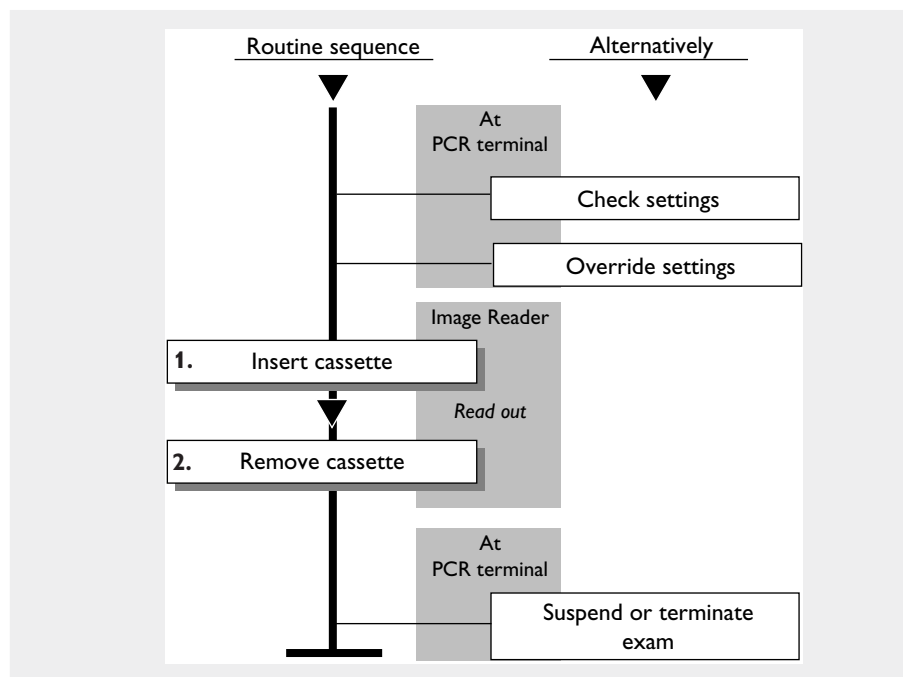


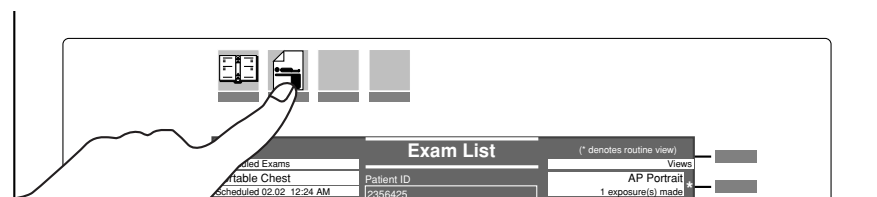
Fig. 5.28 Working procedure after the X-ray exposure

5.6.7 Checking settings

If you are no longer certain which settings were stored for an image plate, you can check these before reading out.



- 1 Press this key to activate the 'Examination' workspace and call up the interactive 'Examination' window.



NOTE

If the interactive 'Image Options' window is on-screen, press 'Cancel' first to return to 'Exam List'.

- Then this window appears:

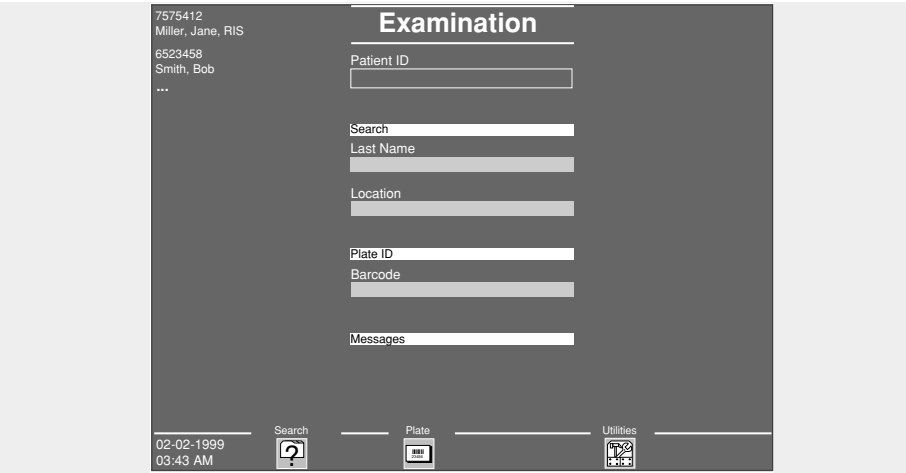
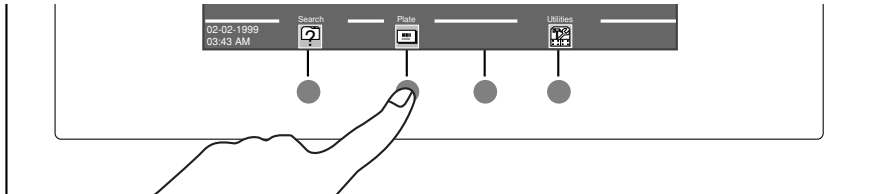


Fig. 5.29 Interactive ‘Examination’ window



- 2 Press the key under ‘Plate’.



- 3 Scan the barcode on the image plate (cassette) whose settings you would like to check.

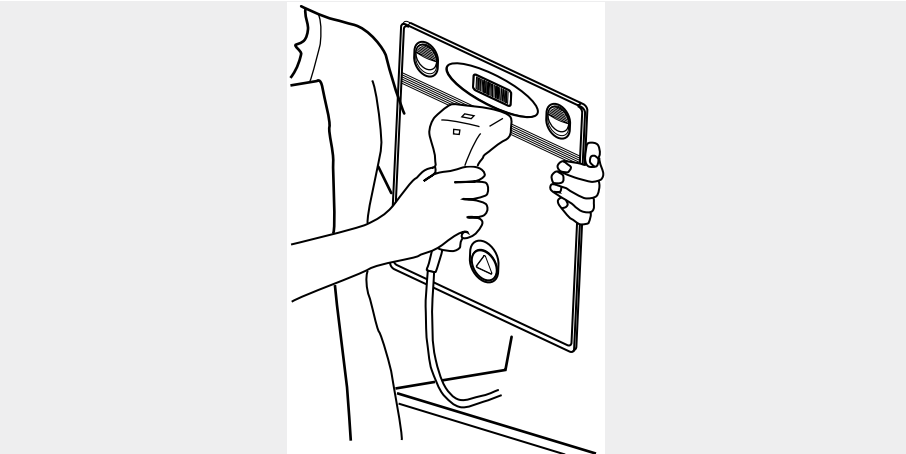


Fig. 5.30 Scan the barcode on the image plate

- Then this window appears:

Fig. 5.31 Interactive 'Image Options' window

- 4 Check the settings in this window.

NOTE

All functions are deactivated and are only used for display.

You can override these settings if these are no longer up-to-date. You can find further information on this in the next section.



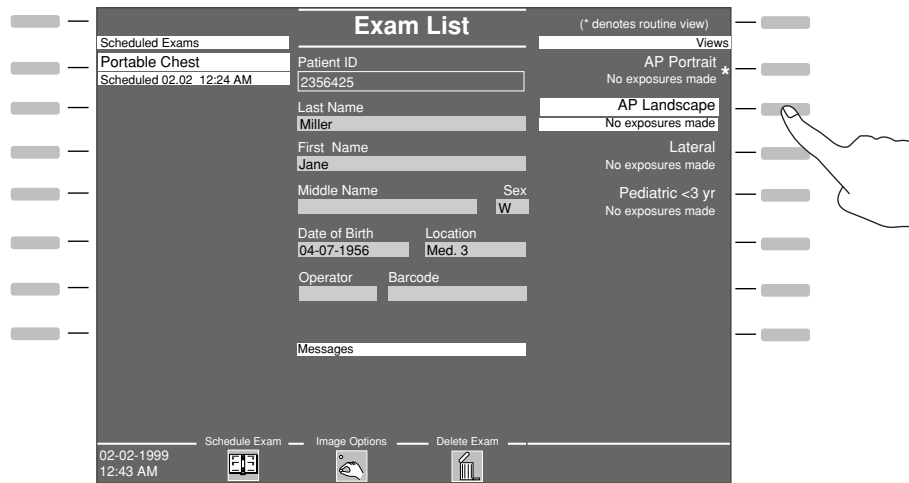
- 5 Press the key under 'Cancel'.
 - The interactive 'Examination' window appears.

5.6.8 Overriding settings

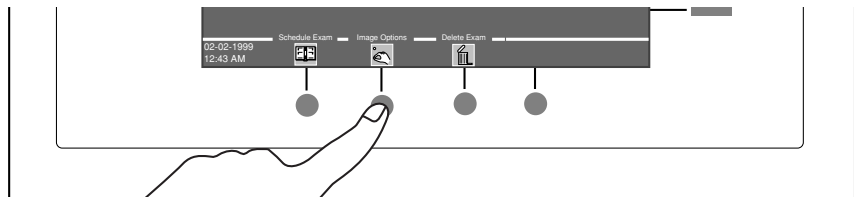
If the settings that have been stored when scanning the barcode on the image plate are no longer valid, you can override them before reading out. You can change the settings for the same patient, e.g. selecting a different examination, or selecting a different patient.

Current patient/different settings

- 1 If necessary, select a different examination or view in the interactive 'Exam List' window.



- 2 Press the key under 'Image Options'.



- Then this window appears:

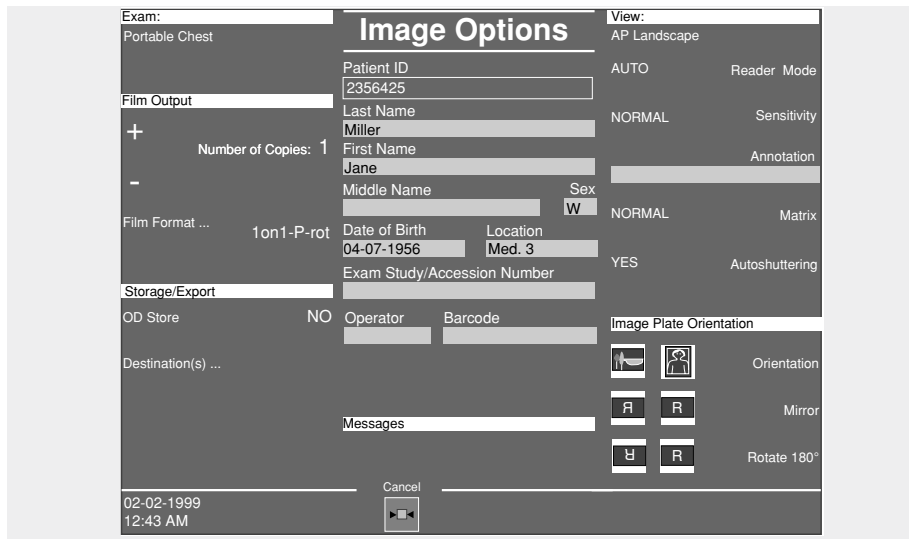


Fig. 5.32 Interactive 'Image Options' window

- 3 Select the new settings.
- 4 Scan the barcode on the image plate.

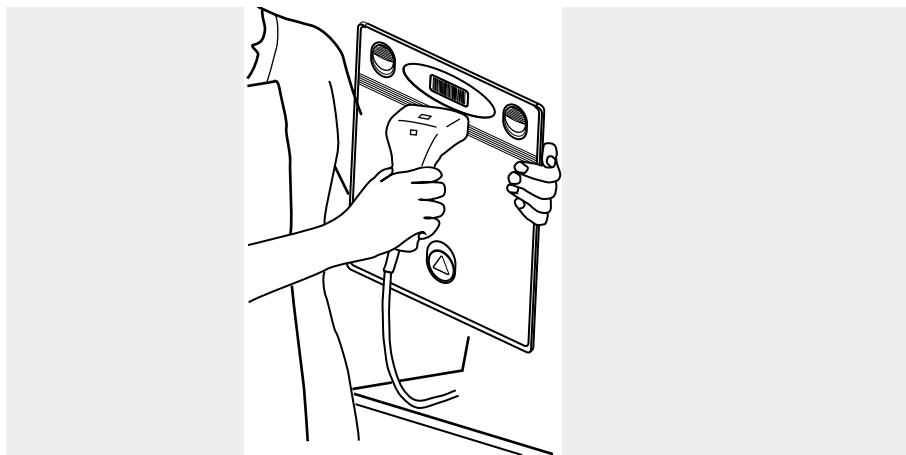


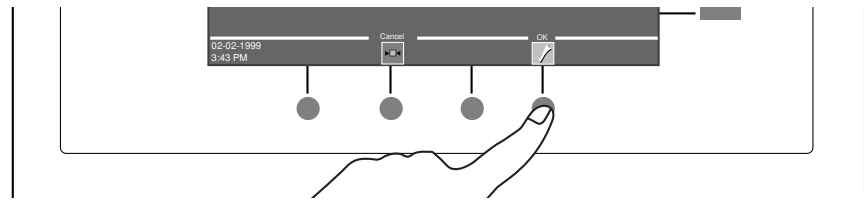
Fig. 5.33 Scan the barcode on the image plate

- Now this window appears:

		Override	
Current settings	Current Plate Information:	New Link Information:	
	Patient ID: 235689	Patient ID: 235689	
	Patient Name: Smith, Bob	Patient Name: Smith, Bob	
New settings	Plate ID: 65329864		
	Exam Name: Portable Chest	Exam Name: Portable Chest	
	View Name: AP Portrait	View Name: AP Landscape	
	Date Linked: 02-02-1999, 1:43 PM	Messages	
	Do you wish to override the information currently associated with this image?		
	02-02-1999 3:43 PM	Cancel	OK

Fig. 5.34 'Override' window

- 5 Confirm the new settings by pressing the key under 'OK'.



The image plate settings are overridden.

New patient

- 1 Proceed as described in the section „Without scheduled examinations“ on page 76 or „With scheduled examination“ on page 81.
- 2 Scan the barcode on the image plate in the 'Exam List' window or 'Image Options' window.
 - The 'Override' window appears (see Fig. 5.34).
- 3 Confirm the new settings by pressing the key under 'OK'.



The image plate settings are overridden.

5.6.9 Reading out the image plate

- 1 Insert the cassette with the exposed image plate into the cassette slot of the image reader.

You can find further information on this in the image reader Instructions for Use.

- 2 Remove the cassette after the reading process has been completed.

The image plate has been erased and can be used for a new exposure.

5.6.10 Completing or suspending an examination

After reading out an image plate, you can complete or suspend the examination. A suspended examination can be continued at a later point in time.

NOTE *An examination is automatically completed if the routine views included in the examination have been read out (views marked with an asterisk *).*

Completing/suspending an examination

The interactive 'Exam List' window appears on the screen.

The 'Exam List' window displays the following information:

Exam List		(* denotes routine view)
Scheduled Exams	Patient ID	Views
Portable Chest	2356425	AP Portrait *
Scheduled 02.02 12:24 AM	Last Name	No exposures made
	Miller	AP Landscape
	First Name	1 exposure(s) made
	Jane	Lateral
	Middle Name	No exposures made
		Pediatric <3 yr
	Sex	No exposures made
	W	
	Date of Birth	
	04-07-1956	
	Location	
	Med. 3	
	Operator	
	Barcode	
	Messages	

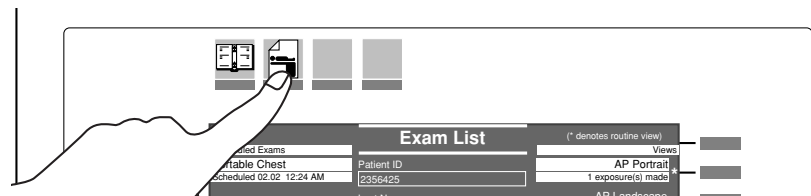
At the bottom, there are buttons for 'Schedule Exam', 'Image Options', and 'Delete Exam'. The date and time '02-02-1999 12:43 AM' are also displayed.

Fig. 5.35 Interactive 'Exam List' window

In the example shown above, the exam status is 'In process' (left column), one exposure has been made (right column). If no further exposure is to be made, the examination must be completed manually because the exposure made is not a routine view.



3 Now press this key.



- This window appears:

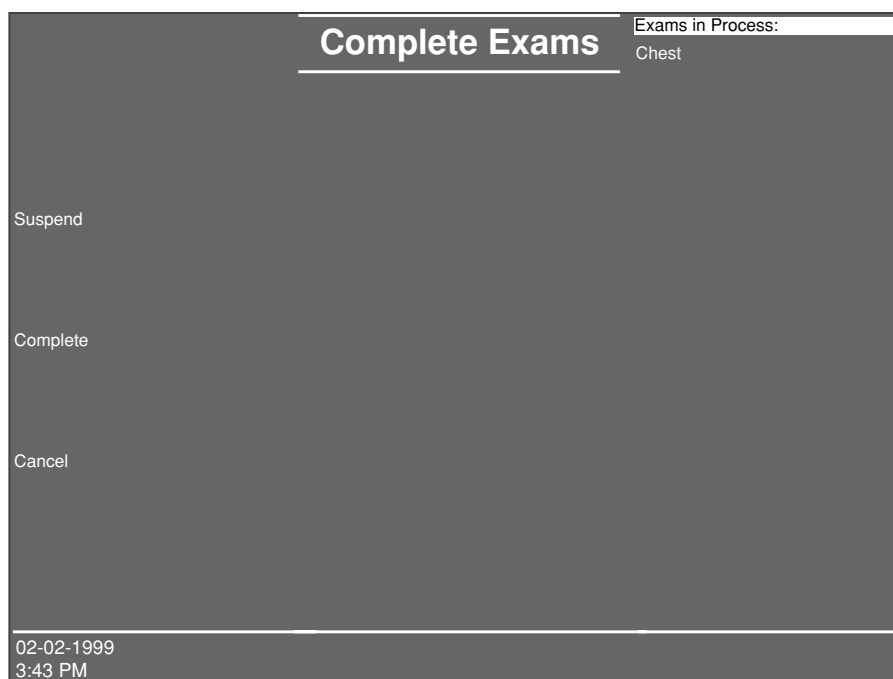


Fig. 5.36 'Complete Exams' window

- 4 Select 'Complete' or 'Suspend'.

Patients whose examinations have reached the 'Completed' status are deleted from the patient list. You can find this patient data later only by using the Search function or by entering the correct patient number.

Patients with an examination in 'Suspended' status remain on the patient list and the examination can be continued at a later point in time. Suspended examinations are automatically completed after a specified time. If necessary, the film is then automatically output.

5.7

Processing of error messages

If an error occurs in the system, an error symbol appears in all interactive windows in the bottom line.

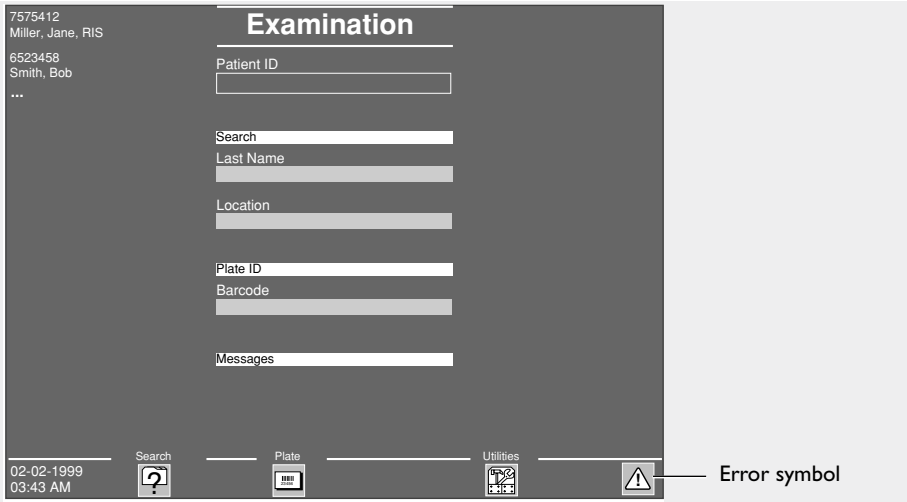
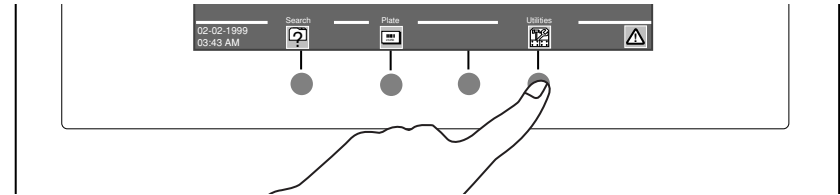


Fig. 5.37 Error symbol

Processing of error messages



- 1
- In the interactive ‘Examination’ or ‘Schedule’ window, press the key under ‘Utilities’.



- Then this window appears:

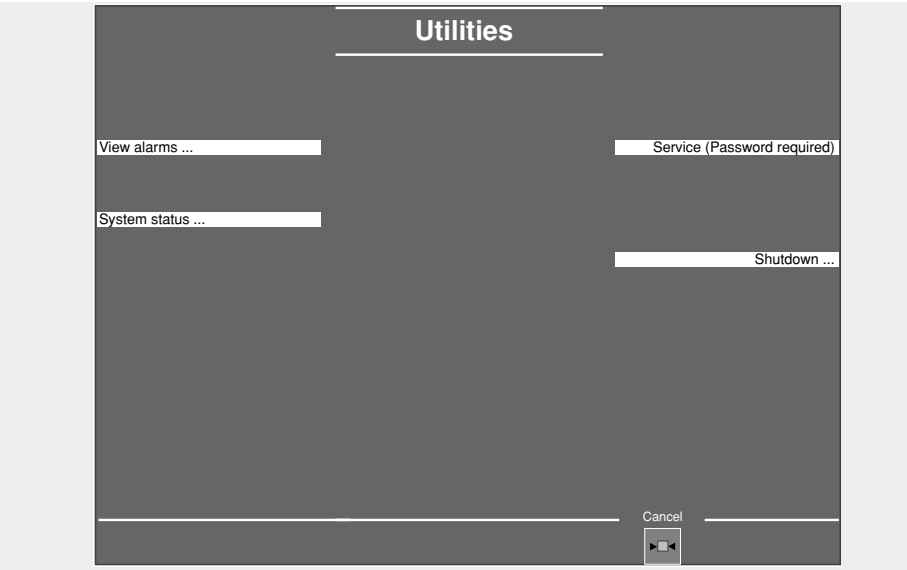
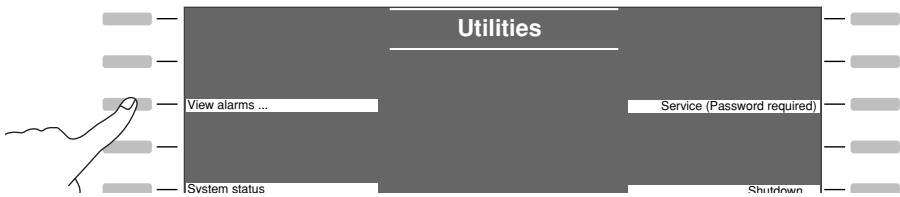


Fig. 5.38 ‘Utilities’ window

2 Press the key next to ‘View alarms’.



- Then this window appears:

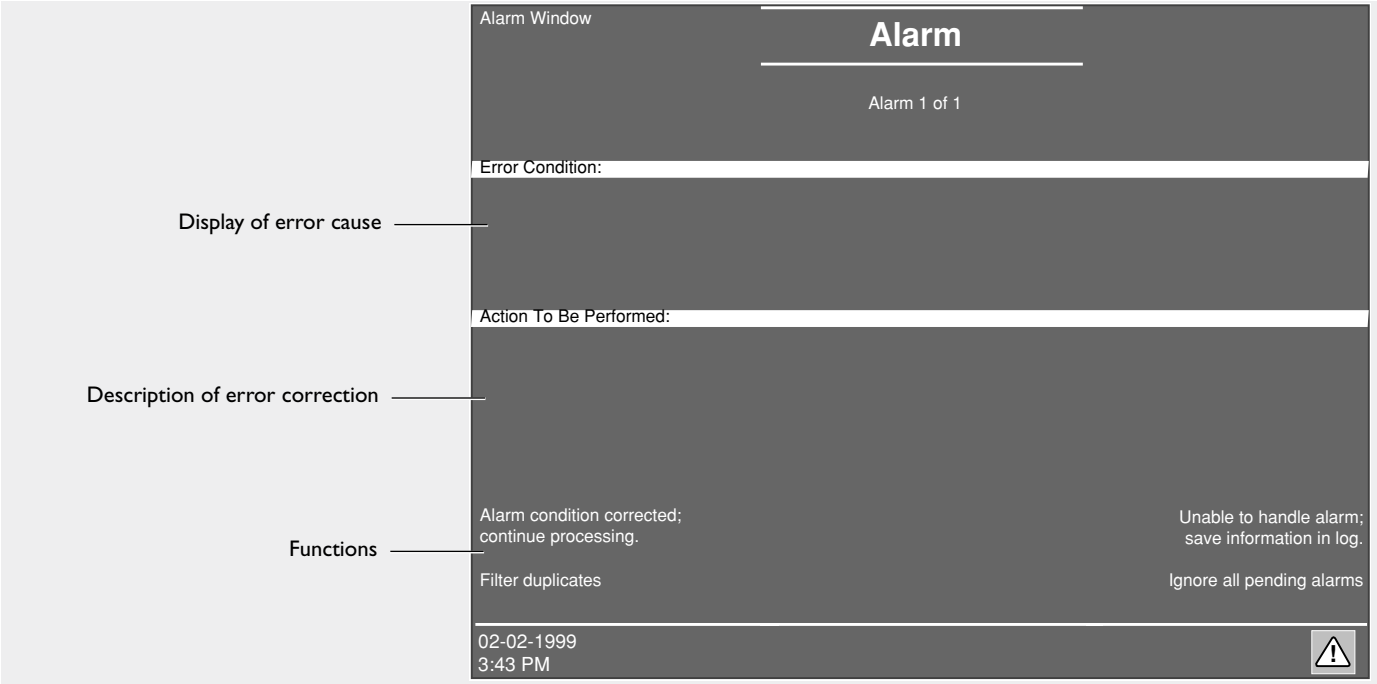


Fig. 5.39 ‘Alarm’ window

3 Select the required function.

Alarm condition corrected; continue processing	Delete all error messages.
Filter duplicates	Delete duplicates of displayed error message.
Unable to handle alarm; save information in log	Save error message.
Ignore all pending alarms	Error message is not deleted.

- After selecting a function, the ‘Utilities’ window appears (see page 99).



4 Press the key there under ‘Cancel’.

- The interactive ‘Examination’ (or ‘Schedule’) window appears.

5.8 Advanced User Menu

NOTE

The Advanced User Menu is solely designed for advanced users who have sound knowledge of the PCR system. They are thus given an opportunity to customise certain system settings and make backup copies of the databases and processing protocols. However, Philips recommends having any major changes to the Advanced User Menu performed by Philips Customer Service.

The Advanced User Menu, which only appears in English, offers advanced PCR users the following functions:

- Backup of Anatomy Database and Procedure Code Database
- Editing of Anatomy Database
- Editing of Procedure Code Database
- Selection of sort criteria for the patient list
- Restoring the Anatomy and Procedure Code Databases
- Formatting a floppy disk
- Listing the files on floppy disk
- Copying the processing protocols from EasyVision to floppy disk
- Restoring the processing protocols from floppy disk to EasyVision

5.8.1

Calling Up the Advanced User Menu

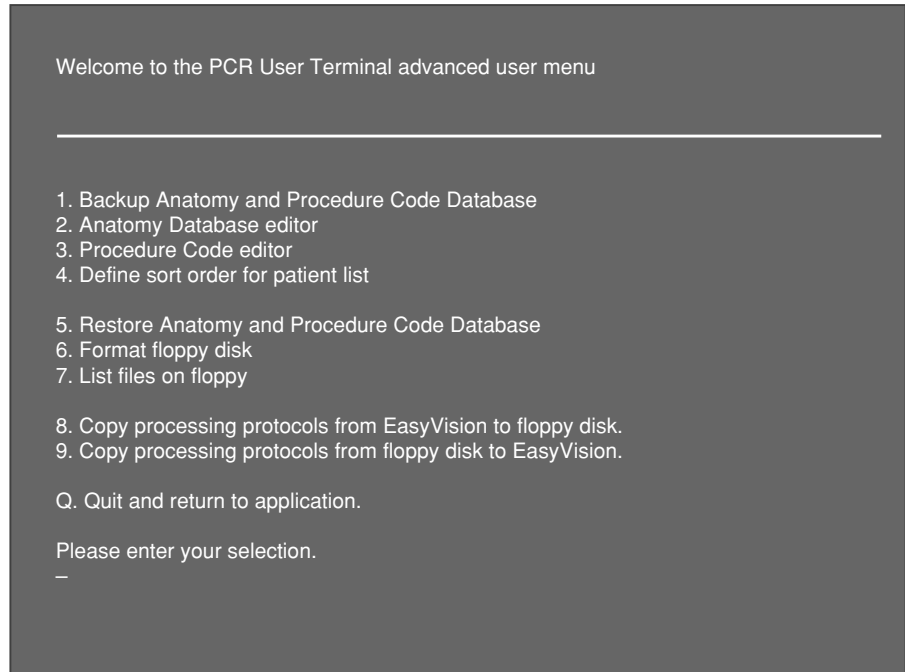
You can call up the menu during the server terminal start procedure or via the "Utilities" window.

NOTE

The Advanced User Menu always has to be called up from the server terminal. If necessary, consult your system administrator to establish which PCR terminal is configured as the server.

About the utility

- 1 In the "Utilities" window press the "Service" button (see Fig. 5.38).
- 2 Then enter the "User" password and confirm by pressing the Enter key. The password you have entered will not be displayed.
 - The Advanced User Menu appears.

**Fig. 5.40** Advanced User Menu

NOTE *The Advanced User Menu on a client terminal only contains menu item 4.*

During the start-up procedure

- 1 Switch the server terminal on or reboot it.
- 2 When the start display (Starting PCR User Terminal, please wait) appears, press the "s" key on the keyboard and then press Enter.
- 3 Then enter the "User" password and confirm by pressing the Enter key.
 - The Advanced User Menu appears.

NOTE *Since during the start-up procedure there is no link with EasyVision yet, menu items 8 and 9 will be missing; menu item "Restore Configuration" will be displayed instead (see page 112).*

5.8.2 Leaving the Advanced User Menu

You can leave the Advanced User Menu with or without saving your changes. To activate changes in menu items 2 and 3 all the PCR terminals have to be rebooted.

Leaving the Advanced User Menu

- 1 In windows where the Q command is displayed press the "q" button and confirm with the Enter key.
 - Confirmation requests appear about leaving the menu.
- 2 Answer with "y" for yes or with "n" for no and confirm by pressing the Enter key.
- 3 When changes have been made in menu items 2 and 3, reboot all the PCR terminals.

5.8.3 Backup Anatomy and Procedure Code Database

With the aid of menu item "Backup Anatomy and Procedure Code Database" you can create a backup copy of the current database entries on floppy disk. The two databases, the Anatomy Database and the Procedure Code Database, are saved in a single file ("ANATOMY.BAK").

Backup Anatomy and Procedure Code Database

- 1 In the Advanced User Menu select item "Backup Anatomy and Procedure Code Database" (see Fig. 5.40).
- 2 Place a formatted empty floppy disk in the drive of the PCR terminal.
- 3 Confirm by pressing the Enter key to start the backup.
 - On the floppy disk the file "ANATOMY.BAK" is now created and filed in a folder bearing the name of the terminal. The file can be displayed with the aid of menu item "List files on floppy".

5.8.4 Editing the Anatomy Database

With the aid of menu item "Anatomy Database editor" you can edit the entries in the Anatomy Database. You should perform a data backup before you make any changes to the database (see page 103).

Edit Anatomy Database

- 1 In the Advanced User Menu select the item "Anatomy Database editor" (see Fig. 5.40).
 - The editor appears displaying the database level.

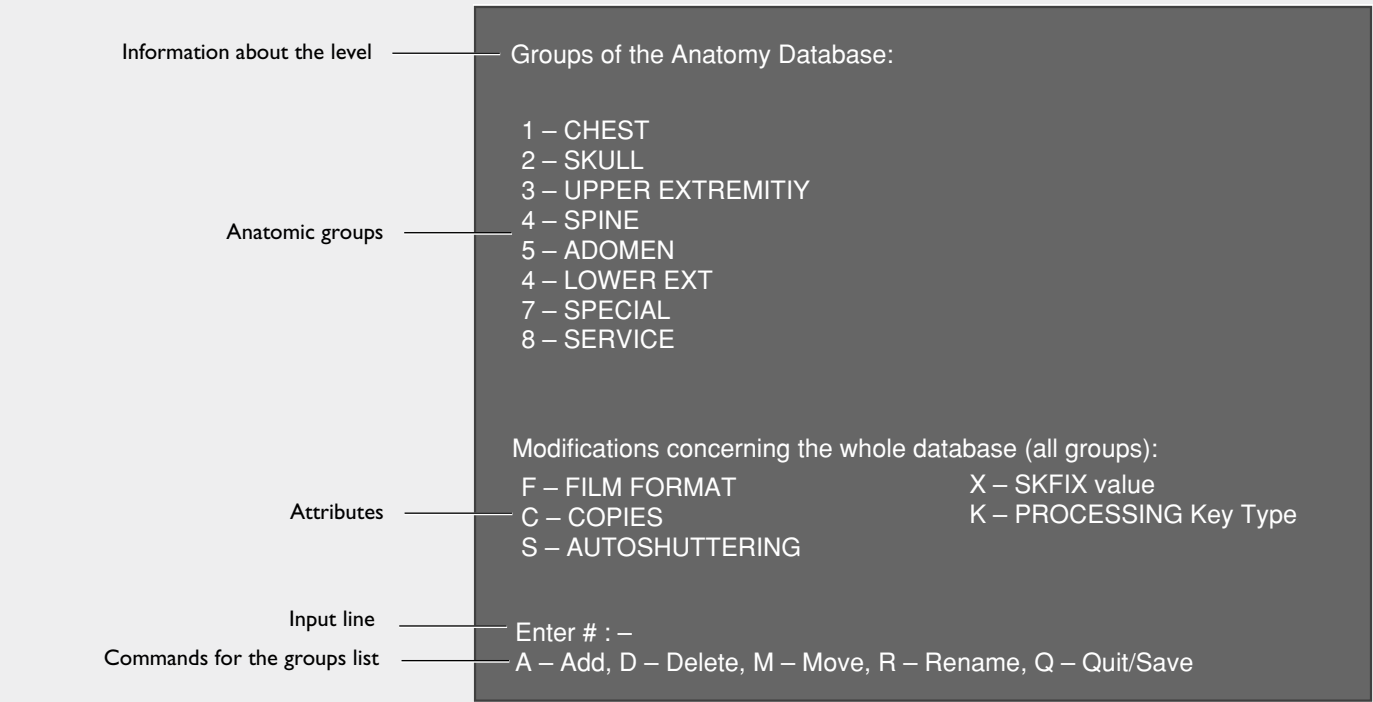


Fig. 5.41 Anatomy Database Editor

- 2 To display the group level underneath now select a group and confirm the selection by pressing the Enter key. Proceed by analogy in order to then display the examination and view level.
- 3 If necessary select an attribute and proceed as described in the next section.

Assign attributes

Assigning attributes such as film size, copies etc. can be performed at four different levels according to the tree structure of the Anatomy Database.

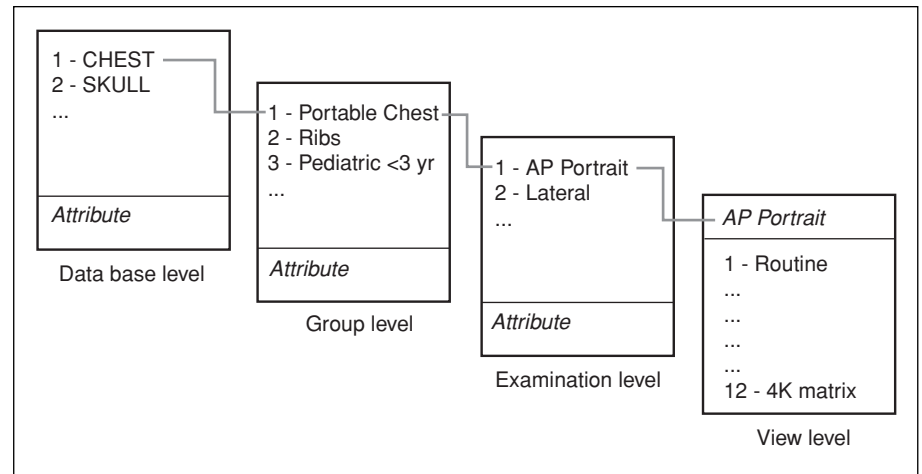


Fig. 5.42 Tree structure of the Anatomy Database

- *At database level*
The attributes selected here apply globally to all groups, examinations and views in the database. At this level the film output (copies), for example, can generally be switched on or off without having to make this setting for the individual groups and examinations. A change in film size at this level is only useful if the default printer or a default film size have to be changed.
- *At group level*
At group level certain attributes can be defined which are only to apply to the examinations of a specific group.
- *At examination level*
At examination level certain attributes can be defined which are only to apply to the views of a specific examination.
- *At view level*
At view level a total of 12 attributes are available which only apply to a single view.

The following attributes are available at the database, group and examination levels:

Attribute	Explanation
Film format	At the database and group levels enter the printer code, "b" for example. If you enter a new printer code the previous one will be overwritten. If you enter a minus symbol (-) the existing printer code will be deleted. At examination level the EasyVision film size is selected, e.g. 1-on1-L.
Copies	Enter the number of film copies (0 = no film output)
Autoshuttering	Switch on/off automatic shutter control
SKFIX value	Enter sensitivity for reading in the "FIX" mode (0.3 to 4.3)
Processing Key type	Enter type of processing protocol, "D" for DRR or "U" for UM.

At view level the following attributes can be defined:

Attribute	Explanation
Routine	Switch on/off routine examination
Film Format Position	Define position in film layout, 0 to 99
Image Orientation	Define format, portrait or landscape (P/L)
Mirror Image	Switch on/off mirror image
Rotation 180°	Switch on/off 180° rotation
SKFIX value	Enter sensitivity for reading in the "FIX" mode (0.3 to 4.3)
EDR	Define operating mode for reading; "auto", "semi", "fixed" or "manual"
Fuji MRM Code	Enter Fuji code for the plate reader
Processing Key	Select PCR processing key
Reader Sensitivity	Define sensitivity when reading; "normal", "high1" or "high2"
Autoshuttering	Switch on/off automatic shutter control
4K matrix	Switch on/off process 4-K matrix
Laterality	Select localisation
View Position	Select projection applied
Body Part Examined	Select body part examined
Patient Orientation	Select patient orientation

Edit anatomical groups

With the commands "Add", "Delete" etc. new anatomical groups can be created. For creating new groups the following restrictions apply:

- up to 16 anatomical groups (regions of the body)
- up to 32 examinations per group
- up to 16 views per examination (at least 1 routine view)
- up to 8 routine views per examination (designated with *)
- repetitions of the names of groups or examinations will be rejected

At the respective levels the following commands are available:

Command	Explanation
Add	Enter new element or copy existing one
Delete	Delete element
Move	Edit sequence in the list
Rename	Rename element
Quit/Save	Leave Anatomy Database
Back	Switch back to previous display

5.8.5

Editing the Procedure Code Database

With the aid of the menu item "Procedure Code Database editor" you can edit new entries in the Procedure Code Database or create new ones. You should perform a data backup before you make any changes in the database (see page 103). The database must contain all the procedure codes which are transferred from the RIS.

Edit database

- 1 In the Advanced User Menu select the item "Procedure Code Database editor" (see Fig. 5.40).
 - The editor appears (here without entries).



Fig. 5.43 Procedure Code Database editor

Below there is an example to demonstrate how to use the editor.

- 2 To create a new entry, enter "a" for "ADD" and confirm by pressing the Enter key.
- 3 In the next window enter the name of the new procedure code. You can use any alphanumeric key with up to 20 characters (up to 16 characters if you are using the DICOM Worklist Management RIS). After confirming, enter a comment (description) which only appears in the Procedure Code Database. Confirm it with the Enter key.
- 4 In the next window select the anatomical region by entering the corresponding digit and confirm it with the Enter key.
- 5 In the next window select the examination by entering the corresponding digit and confirm it with the Enter key.
- 6 In the following window the views of the examination selected appear. All the routine views (designated with an *) are transferred to the procedure code. For inclusion in the procedure code you can mark other views as a routine view by selecting the corresponding digit of the view and confirming with the Enter key.

- 7 Enter "b" for Back and confirm.
 - The new procedure code is displayed.

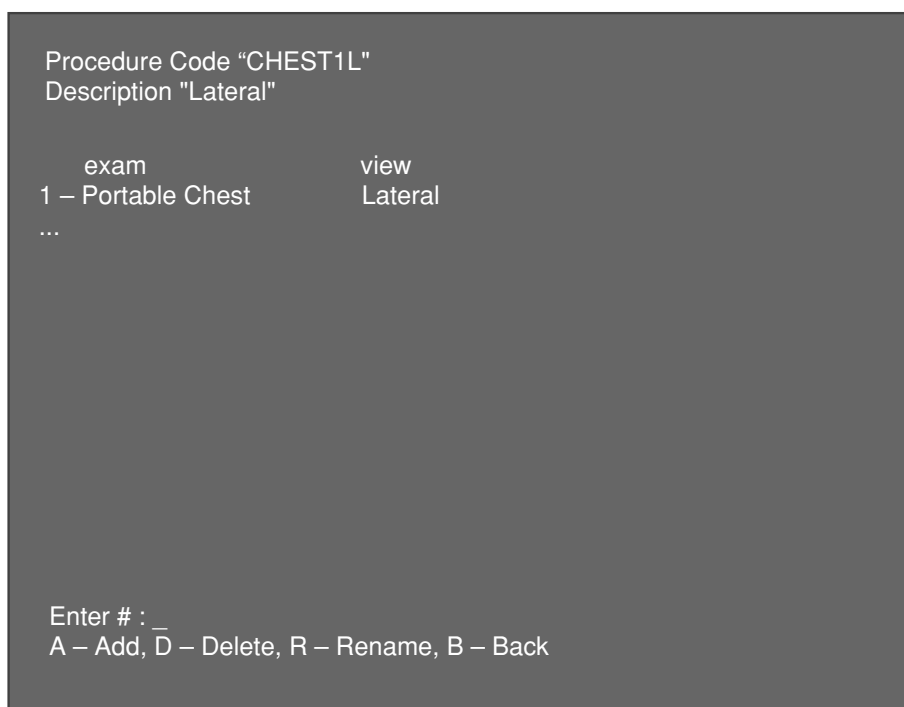


Fig. 5.44 New procedure code

- 8 To edit the procedure code generated use the commands on the bottom line.
- 9 To create a new procedure code use the command "Back" and repeat the procedure described.

The following commands are included in the windows:

Command	Explanation
Add	Enter new element
Delete	Delete element
Rename	Rename element
Quit/Save	Leave Procedure Code Database
Back	Switch back to previous display

5.8.6 Selection of sort criteria for the patient list

You can define different sort criteria for displaying the patient list on each PCR terminal separately.

Define sort criteria

- 1 In the Advanced User Menu select the item "Define sort order for patient list" (see Fig. 5.40).
 - The sort criteria are displayed.
- 2 Select the required sort criterion:
 - 1 = by last name
 - 2 = by ID
 - 3 = by incoming date
- 3 Confirm by pressing the Enter key.
- 4 Reboot the appropriate PCR terminal.

5.8.7 Restore the Anatomy and Procedure Code Databases

The menu item "Restore Anatomy and Procedure Code Database" is used to restore the databases from a floppy disk to the PCR system. In connection with the function "Backup Anatomy and Procedure Code Database" the databases can thus be exchanged between different PCR systems.

Restore databases

- 1 In the Advance User Menu select the menu item "Restore Anatomy and Procedure Code Database" (see Fig. 5.40).
- 2 Insert the floppy disk containing the saved databases into the disk drive and confirm by pressing the Enter key.

The end of the procedure is indicated by an appropriate message.

5.8.8 Formatting a floppy disk

You can format a 3.5" floppy disk for a storage capacity of 1.44 MB.

Formatting a floppy disk

- 1 Insert a suitable floppy disk in the drive and confirm by pressing the Enter key.
- 2 In the Advanced User Menu select the item "Format floppy disk" (see Fig. 5.40).

The end of the procedure is indicated by an appropriate message.

5.8.9 Listing the files on floppy disk

With the aid of menu items "List files on floppy" you can display the files stored on a floppy disk.

List files

- 1 In the Advanced User Menu select the item "Format floppy disk" (see Fig. 5.40).
- 2 Insert a suitable floppy disk and confirm by pressing the Enter key.

5.8.10 Copy processing protocols from EasyVision to floppy disk

The menu item "Copy Processing protocols from EasyVision to floppy disk" is used to create a backup copy of the processing keys. The function can be used for EasyVision from version 4.2L2 onwards if the EasyVision computer does not have a floppy disk drive.

Copy processing protocols

- 1 On the EasyVision open the window for processing protocols.
- 2 Click on the "Import/Export" button.
 - The Import and Export window appears.
- 3 If necessary deactivate the "Floppy" option and click on "Export".
 - The processing protocols are transferred to the PCR terminal.
- 4 Insert an empty formatted floppy disk in the drive of the PCR terminal.
- 5 In the Advanced User Menu select the item "Copy Processing protocols from EasyVision to floppy disk" (see Fig. 5.40).

On the floppy disk a backup file is created with the name "protocol.dat".

5.8.11 **Restore the processing protocols from floppy disk to EasyVision**

With the aid of the menu item "Copy Processing protocols from floppy disk to EasyVision" you can transfer the saved processing keys from the floppy disk back to EasyVision.

Restore processing protocols

- 1 Insert the floppy disk with the saved processing protocols in the drive of the PCR terminal.
- 2 In the Advanced User Menu select the item "Copy Processing protocols from floppy disk to EasyVision" (see Fig. 5.40).
 - The backup file "protocol.dat" is saved on the PCR terminal.
- 3 On the EasyVision open the window for processing protocols.
- 4 If necessary deactivate the option "Floppy" and click on "Import".
 - The processing keys are transferred from the PCR terminal to EasyVision. In this procedure all the existing processing keys will be deleted.

5.8.12 **Restore configuration**

This function is only available if the Advanced User Menu has been called up when the PCR terminal was being started up. In the event of an inadequate or incorrect configuration this item is used to retrieve one of the last ten previous configurations. The preceding configurations contain both the anatomy databases and the image distribution databases.

5.9 Technical data

5.9.1 General data

Feature	Specifications
Operating console	
Weight	4 kg
Dimensions	335 mm x 430 mm x 60 mm (height x width x depth)
Options	RIS connection, several PCR terminals in one equipment group, DICOM Worklist Management
PC	
Interfaces	Asynchronous serial interface for image reader; Ethernet for EasyVision/image reader (AC5000/500)
You can find further technical data in the PC instructions.	
Ambient conditions	
In operation	Temperature: +15°C to +30°C, Rel. humidity: 40% to 80%, no condensation
For storage and transport	Temperature: 0° to +45° Rel. humidity: 10% to 90%, no condensation
Power supply	
Mains voltage	100 V bis 120 V $\pm 10\%$ or 200 V bis 240 V $\pm 10\%$
Mains frequency	50 Hz/60 Hz
Nominal power	0.2 kVA

5.9.2
Labels

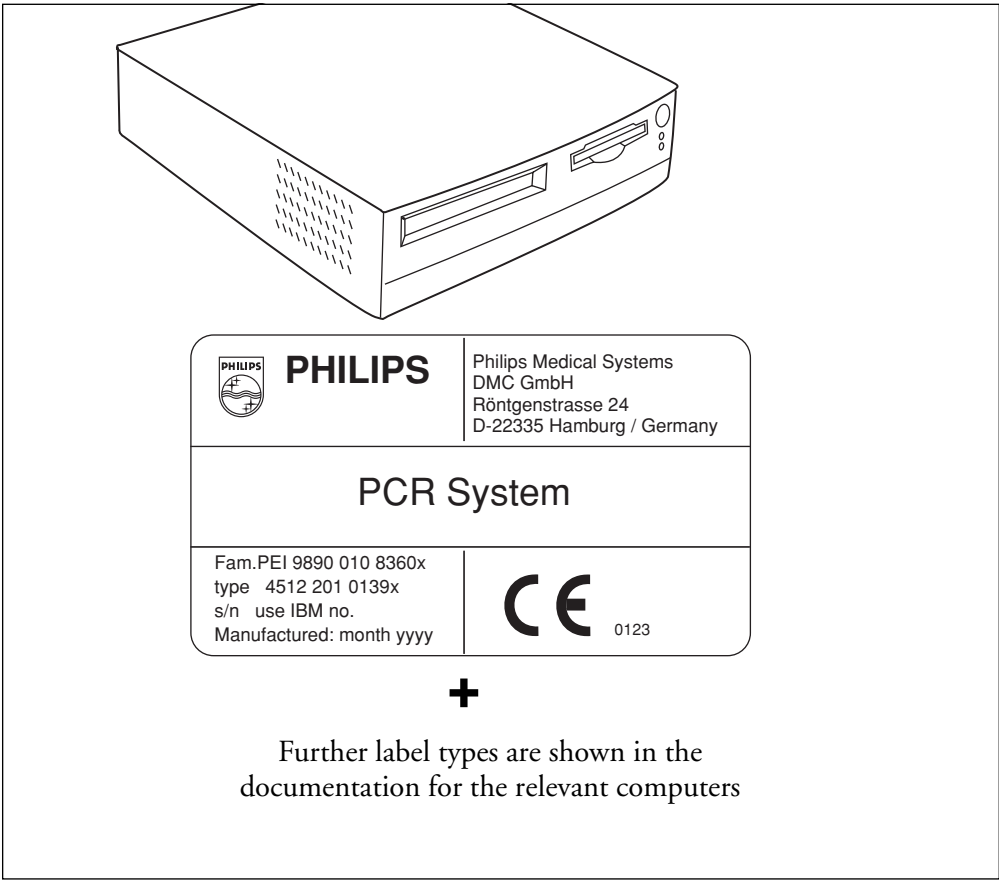


Fig. 5.45 Labels

6 PCR image plate reader

6.1 What is an image plate reader?

In the PCR system the image plate reader is responsible for reading the image plates which have been exposed at conventional examination workstations in cassette technology. During the reading process the image plate is initially unloaded from the cassette and subsequently read internally via a laser unit. The X-ray image is saved on the image plate in the form of excited charge carriers. The image information is digitised during reading and later processed on the EasyVision RAD. After the reading process the image plate is returned via erasure to the basic state, finally, it is loaded into the cassette. It is now ready for another exposure.

6.2 PCR Compano

The following chapter describes how to operate the PCR Compano.

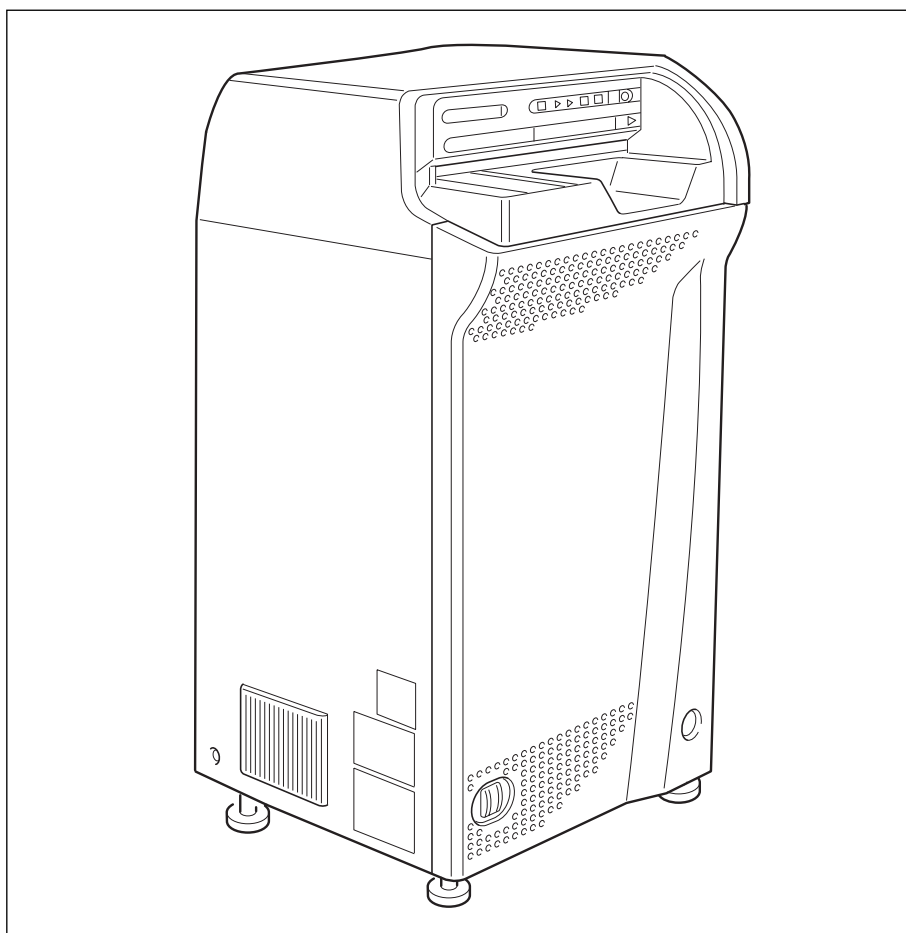


Fig. 6.1 PCR Compano

6.2.1 Overview

Hardware Components

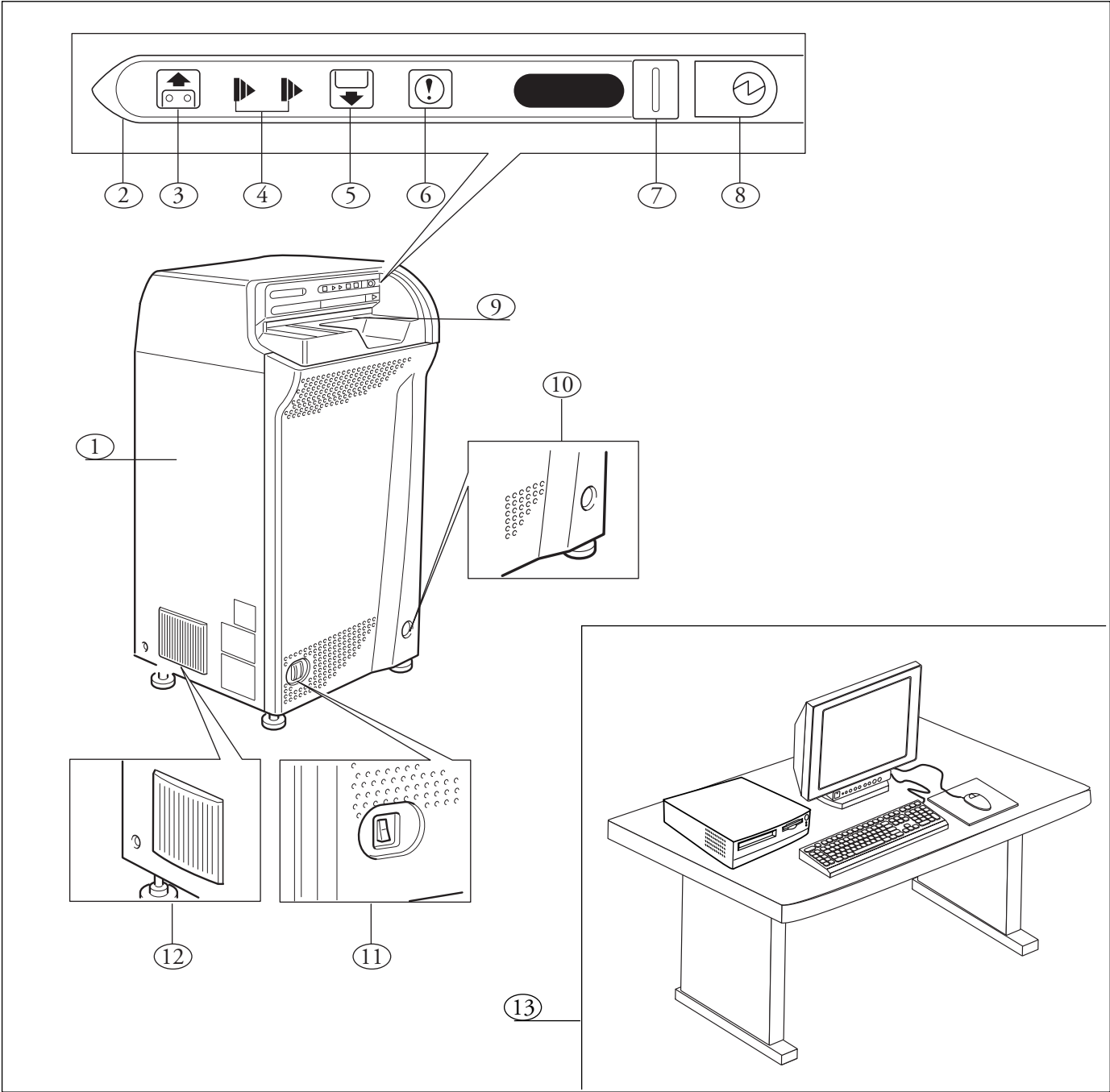




Fig. 6.2 PCR Compano system

Item	Use
1	Compano plate reader
2	Control panel of Compano plate reader Contains the various pilot lamps and switches.
3	Load lamp Lights up green when the start process has been successfully completed after switch-on and the plate reader is ready for processing cassettes.
4	Status displays for cassette processing Flash during cassette processing.
5	Unload lamp Lights up green when cassette processing has finished. The cassette with the erased image plate can be removed.
6	Call indicator When this lamp lights up (yellow), a window appears on the screen of the Compano Preview console with special information. Follow the instructions shown here. When an error message is displayed, an alarm signal is heard if the acoustic signal is activated (see page 195).
7	"Erase" button for primary and secondary erasure mode If the button is pressed once, secondary erasure mode is activated and the relevant symbol  appears on the display next to the button. If the button is pressed again, primary erasure mode is activated and the relevant symbol  appears. To return to standard routine operation, press the button once again (see also page 126).
8	Pilot lamp Lights up green when the main switch is set to position »I« (on) and the power supply is available. As the main switch normally remains switched on, the pilot lamp also glows continuously.
9	Cassette compartment Used to insert a cassette containing an image plate.
10	Reset switch Only for restarting after potential disruptions; do not press during normal operation.
11	Main switch Always remains in On position »I«. Should only be switched off with lengthy interruptions in operation.
12	Dust filter/ventilation A fan is installed in front of the fan.
13	Preview console (see page 161)

6.2.2 Switching on the PCR Compano

Further information on this subject can be found in the section „PCR System – Switch-on Sequence“ on page 27

- 1 Check that the pilot lamp is lit up in the control panel of the plate reader.

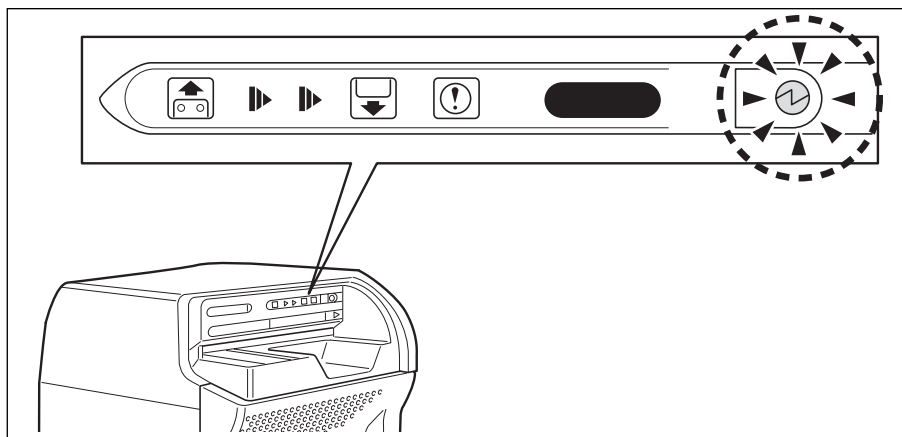


Fig. 6.3 Pilot lamp lit up

The main switch on the image plate reader must be switched on so that the pilot lamp lights up. As a rule, this should be permanently switched on so that the pilot lamp is always lit up. If it is not lit up, firstly set the main switch to position 'I' (on).

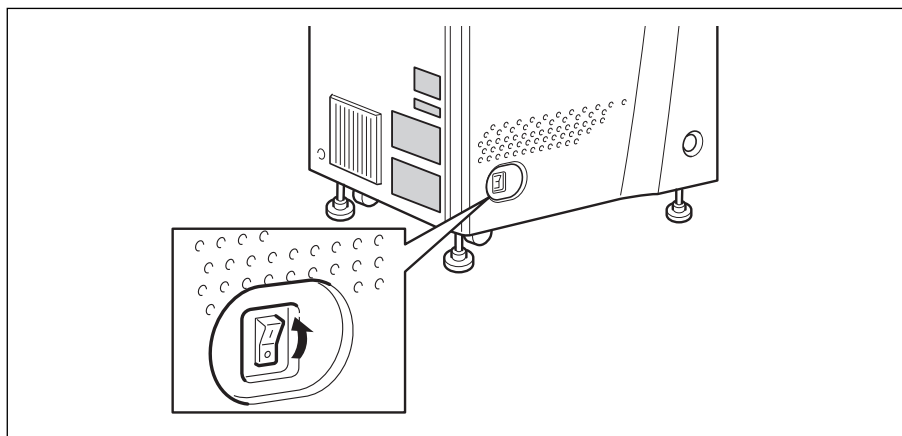


Fig. 6.4 Main switch in position 'I'

After being switched on, the plate reader enters the start process, which takes a short while.

The plate reader is ready for operation when the green load lamp is lit up. For this there needs to be a connection to the Preview console.

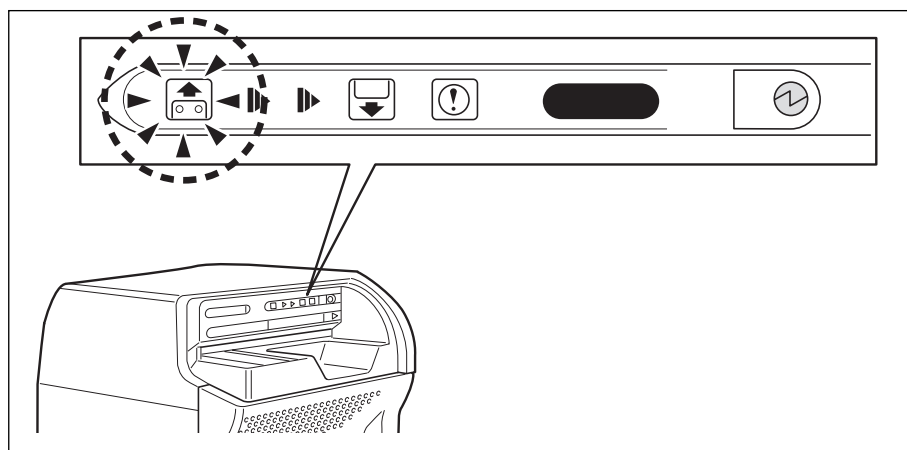


Fig. 6.5 Load lamp lit up

6.2.3

Switching off the PCR Compano

Further information on this subject can be found in the section „PCR System – Switch-off Sequence“ on page 27

- 1 Check that processing of the last cassette has finished. In this case the unload lamp in the control panel of the plate reader lights up.

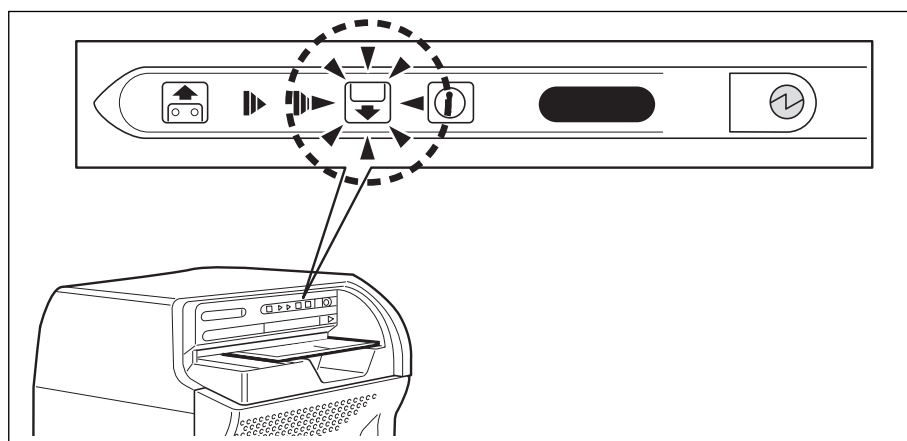


Fig. 6.6 Unload lamp lit up

- 2 Remove the cassette from the cassette compartment.

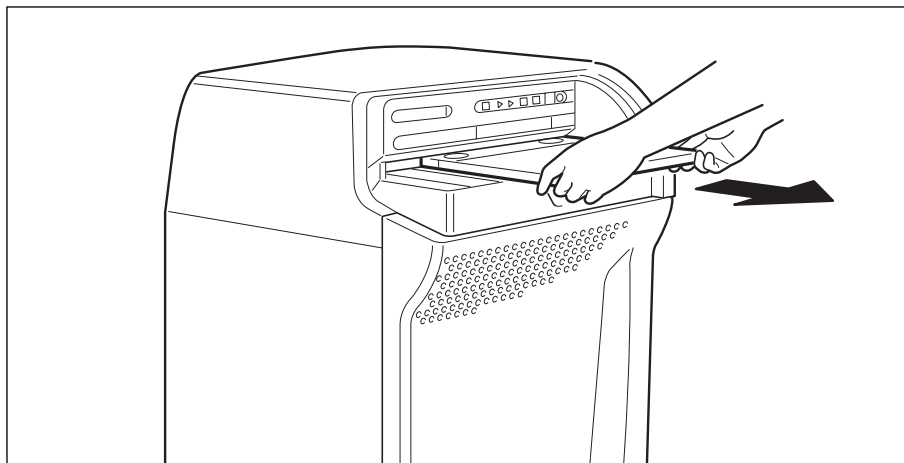


Fig. 6.7 Remove cassette

- 3 If necessary, set the main switch of the plate reader to position '0'.

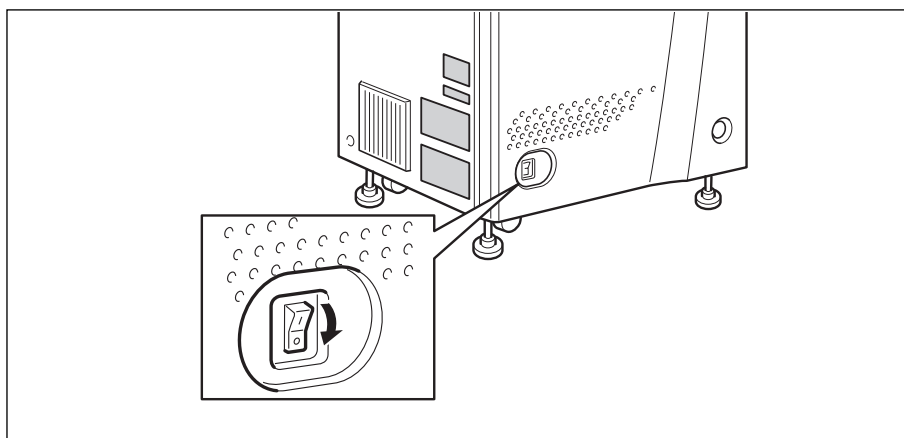


Fig. 6.8 Main switch in position '0'

The PCR Compano has been properly switched off.

6.2.4 Inserting a Cassette

See below for a description of how to insert a cassette in the plate reader properly. Here it is assumed that you have made the exposure and entered the barcode of the image plate at the PCR terminal. The image plate must have been exposed according to the examination and projection selected at the PCR terminal.

NOTE

If you insert a cassette in the plate reader without having previously scanned the barcode at the PCR terminal, processing of this cassette will be rejected. A corresponding message appears on the screen of the Preview console. Remove the cassette and enter the barcode at the PCR terminal.



WARNING

The plate reader can become damaged if the cassette is not inserted properly. Make sure that the cassette is not inserted facing the wrong way up, at an angle or in the wrong direction. If necessary, remove exposure markers used when making the exposure before inserting the cassette.

Inserting cassette

- 1 Turn the cassette over with the front upwards so that the barcode window is facing upwards and to the front (see Fig. 6.11).
- 2 Check that the load lamp on the control panel of the plate reader is lit up.

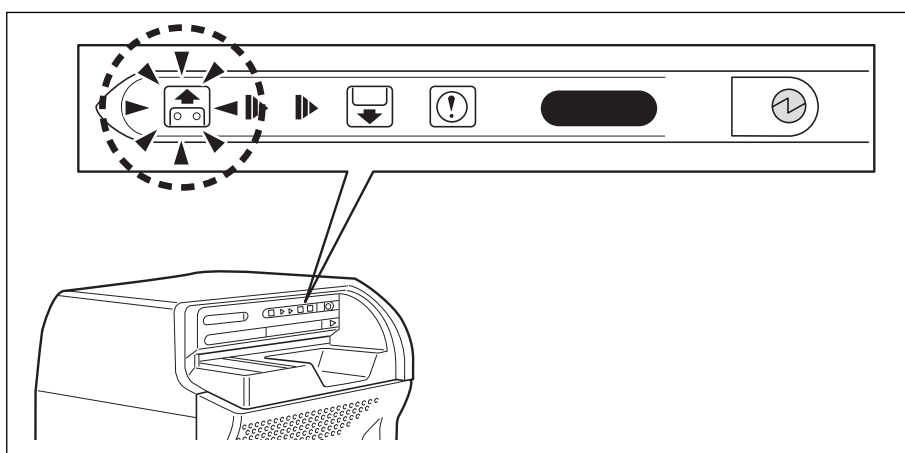


Fig. 6.9 Load lamp lit up

- 3 Slide the cassette with the front upwards along the right-hand insertion edge into the cassette compartment until it snaps into place. When doing so you should feel a slight resistance which has to be overcome on insertion.

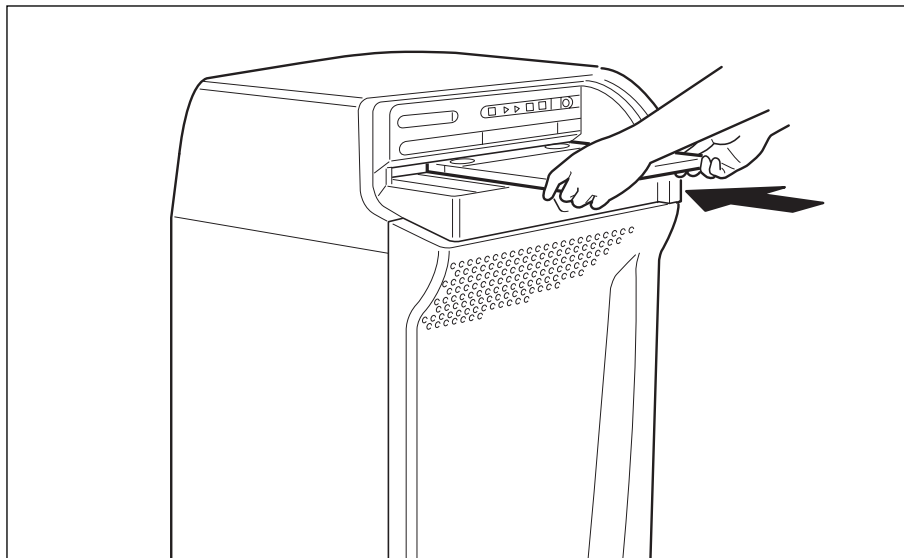


Fig. 6.10 Insert cassette

Ensure that the cassette is slowly slid along the right-hand insertion edge.

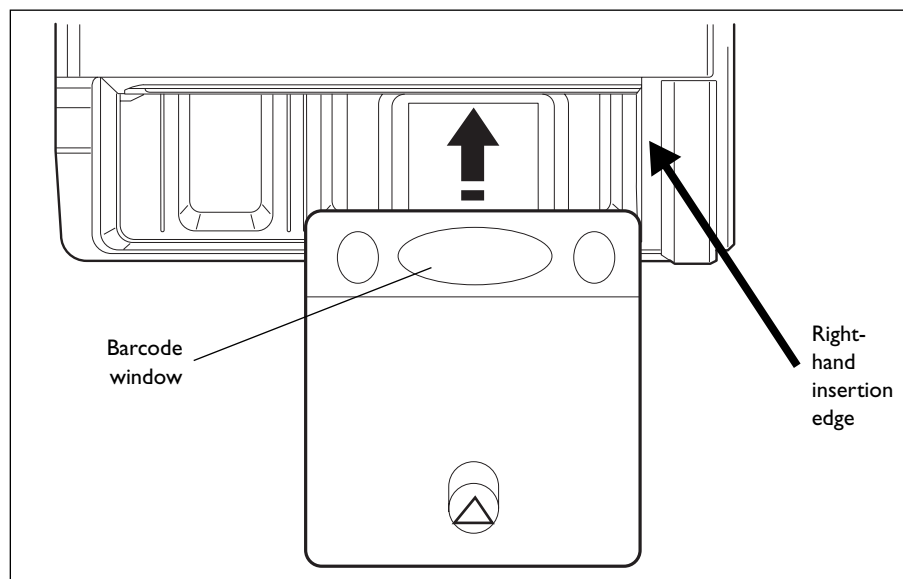


Fig. 6.11 Correct: cassette against insertion edge

NOTE

Never insert cassettes in the cassette compartment in the following ways.

Wrong: The cassette is not right against the insertion edge. There is a gap between the insertion edge and the cassette.

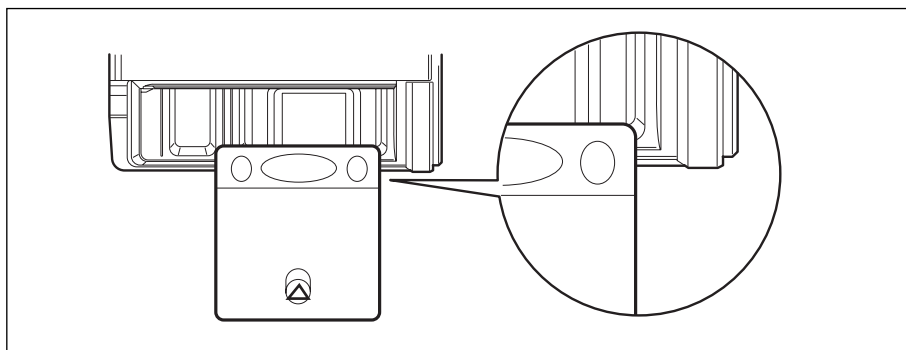


Fig. 6.12 Wrong: gap to the insertion edge

Wrong: Cassette is at an angle.

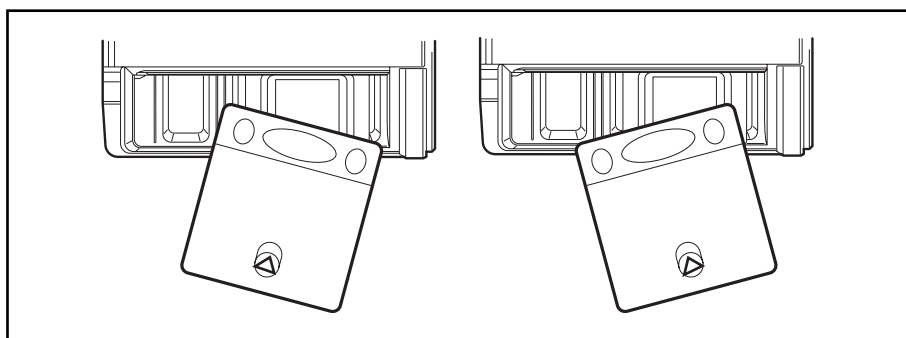


Fig. 6.13 Wrong: cassette at an angle

When the cassette snaps into place properly in the cassette compartment, the load lamp in the control panel of the plate reader is extinguished. Reading of the image plate starts automatically. During this process the cassette is locked in the cassette compartment and cannot be removed.

On the screen of the Preview console the progress of the cassette processing is shown. The status displays flash in the control panel of the plate reader.

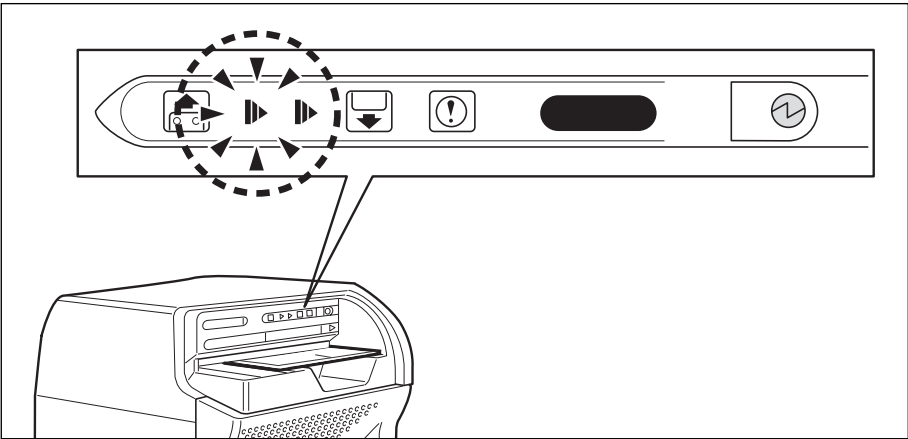


Fig. 6.14 Status display flashes

The first arrow flashes during reading. The second arrow flashes at the beginning of erasure until the image plate is reloaded in the cassette. The processing of the cassette is complete when the corresponding message appears in the status field of the Preview console.

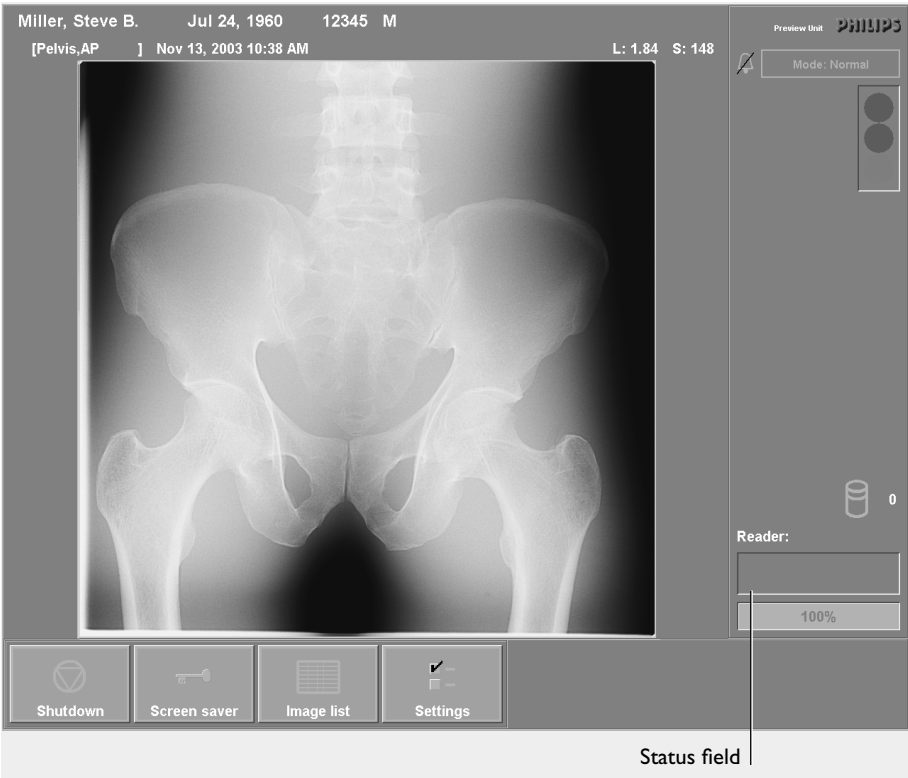


Fig. 6.15 Reading process is complete

At the same time the unload lamp is lit up in the control panel of the plate reader.

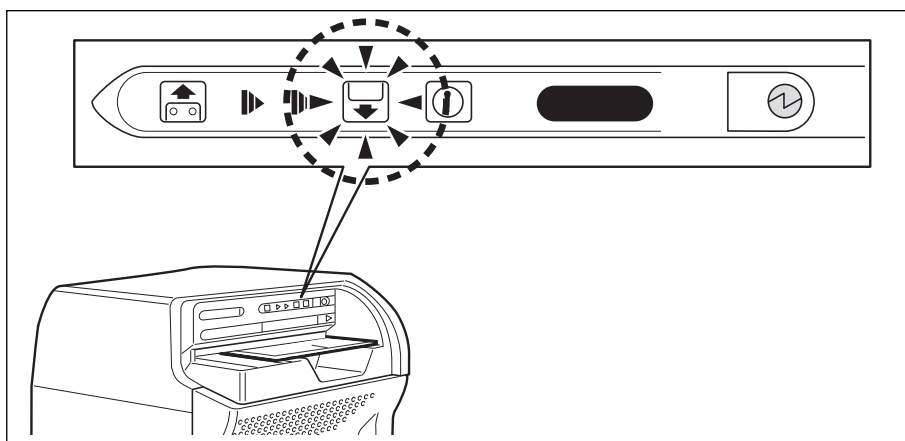


Fig. 6.16 Unload lamp lit up

6.2.5

Removing a Cassette

- 1 Check that the unload lamp is lit up in the control panel of the plate reader.

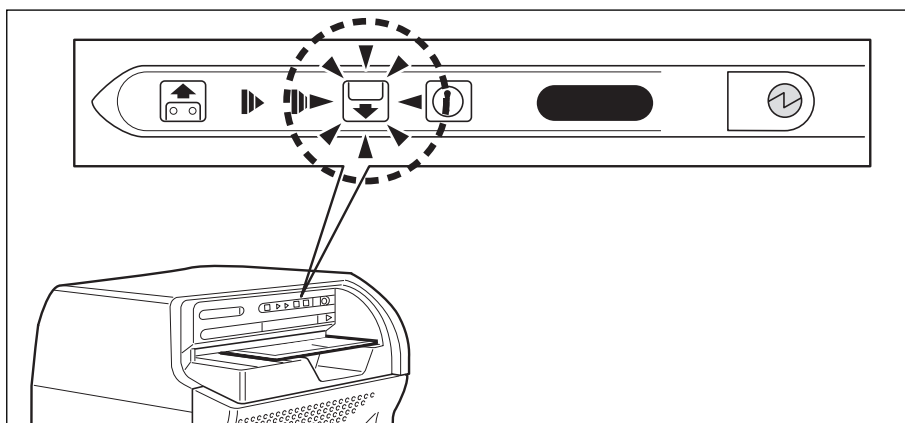


Fig. 6.17 Unload lamp lit up

- 2 Slowly remove the cassette from the cassette compartment, keeping it straight.

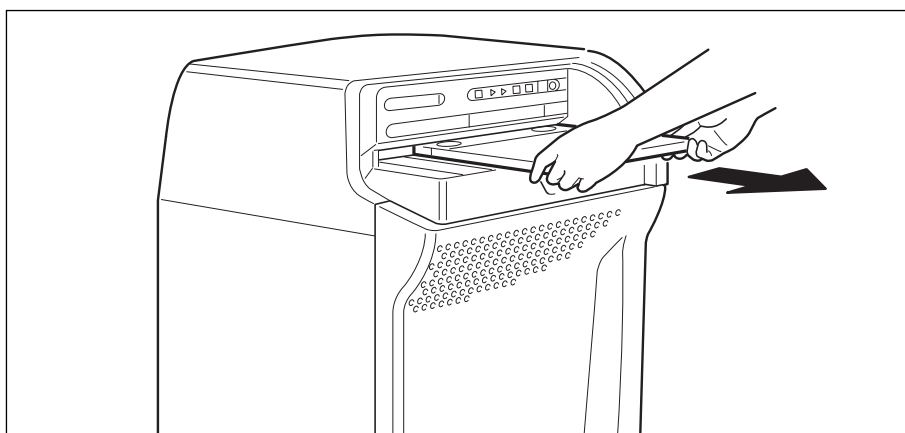


Fig. 6.18 Removing cassette

- The unload lamp is extinguished and the load lamp lights up. The cassette can be used for a new exposure.

6.2.6 Performing Secondary Erasure

In routine operation the image plates are always erased automatically after reading. However, if an image plate has not been used **for 8 hours** or longer, a special secondary erasure process must be carried out. Here the cassette is not read but only erased.

The image plates absorb the natural radiation over a period of time, which means that an increase in image noise is to be expected for images with low exposure levels. For applications with a low radiation dose, **secondary erasure** of the image plate should therefore be carried out after lengthy storage periods.

Erasing image plate

- 1 Press the "Erase" button in the control panel of the plate reader once.
 - Secondary erasure mode is indicated for the next cassette inserted in the adjacent display.

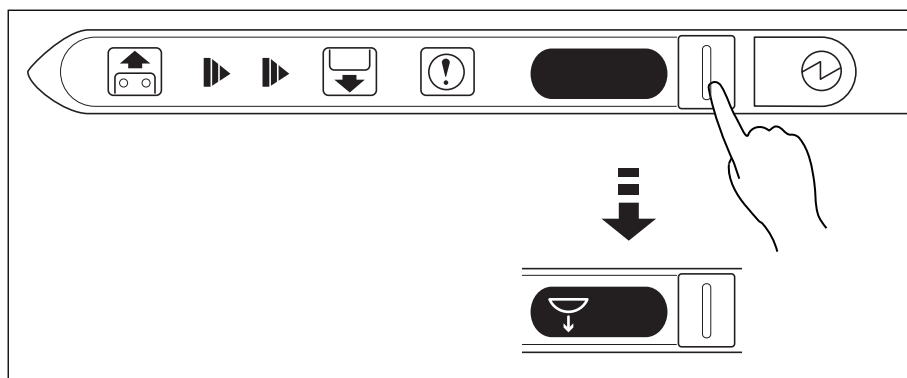


Fig. 6.19 Activating secondary erasure

- 2 Insert the cassette in the cassette compartment (see page 138).

During erasure the status display for cassette processing flashes in the control panel of the plate reader. A message indicating the operating mode of the image plate reader appears above the progress indicator on the screen of the Preview console. After the process has finished, the plate reader automatically changes back to the normal read mode so that erasure is never valid for more than one cassette.

When the unload lamp is lit up in the control panel of the plate reader, erasure has finished. The cassette can be removed and used for a new exposure.

6.2.7 Performing Primary Erasure

In routine operation the image plates are always erased automatically after reading. However, if there has been an underexposure or overexposure, a special primary erasure process must be carried out. Here the cassette is not read but only erased.

NOTE *If the plate reader identifies an overexposed image plate, the Compagno Preview console shows an error message on the screen. Incorrectly exposed image plates must not be used for around 16 hours after primary erasure.*

Erasing image plate

- 1 Press the "Erase" button in the control panel of the plate reader twice.
 - Primary erasure mode is indicated for the next cassette inserted in the adjacent display.

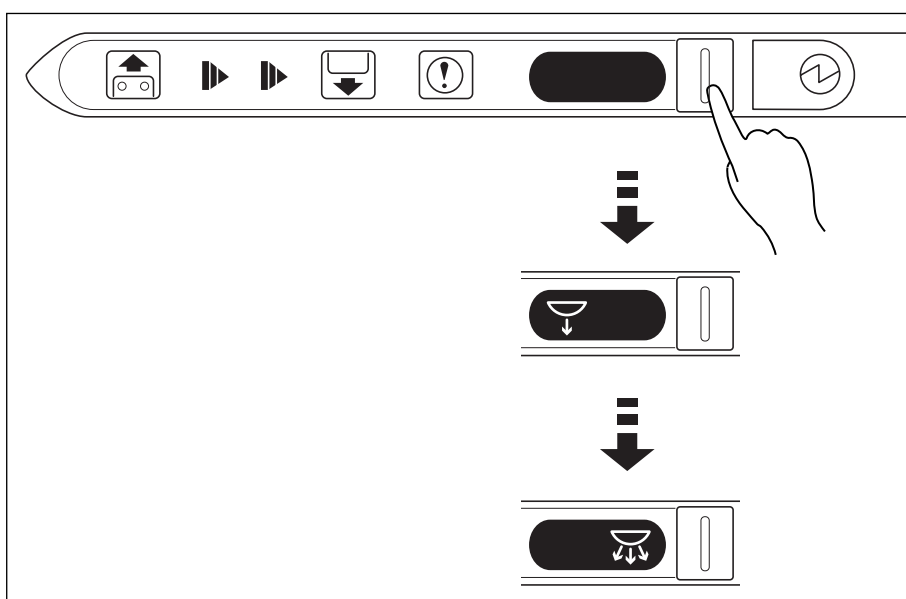


Fig. 6.20 Activating primary erasure

- 2 Insert the cassette in the cassette compartment (see page 138).

During erasure the status display for cassette processing flashes in the control panel of the plate reader. A message indicating the operating mode of the image plate reader appears above the progress indicator on the screen of the Preview console. After the process has finished, the plate reader automatically changes back to the normal read mode so that erasure is never valid for more than one cassette.

When the unload lamp is lit up in the control panel of the plate reader, erasure has finished. The cassette can be removed and used for a new exposure.

6.2.8
Technical data

General data

Features	Specifications
Weight Plate reader	155 kg
Grey level depth when reading	10 bits/pixel (1024 grey levels)
Dimensions Plate reader	
Height	1065 mm
Width	550 mm
Depth	515 mm
Ambient conditions	
In operation	Temperature: + 15°C to + 30°C, Rel. humidity: 40% to 80%, no condensation
For storage and transport	Temperature: 0°C to + 45°C Rel. humidity: 10% to 90%, no condensation
Power supply	
Mains voltage	100 V to 120 V ±10% or 200 V to 240 V ±10%
Mains frequency	50 Hz/60 Hz
Nominal power	Rating Plate reader0.7 kVA (700 W) Preview console 0.2 kVA (200 W)

Cassette sizes

The image reader can be adjusted to metric or inch cassette sizes.

Metric setting	Inch setting
35 cm x 35 cm,	14" x 14"
24 cm x 30 cm (or 10" x 12")	10" x 12"
18 cm x 24 cm (or 8" x 10")	8" x 10"
35 cm x 35 cm,	14" x 14"

Processing times

The following information relates to the processing of an image plate from the automatic unloading through to loading after processing.

Cassette sizes	Processing times
35 cm x 43 cm	ca. 56 plates/h
35 cm x 35 cm	ca. 64 plates/h
24 cm x 30 cm	ca. 69 plates/h
18 cm x 24 cm	ca. 90 plates/h
10" x 12"	ca. 69 plates/h
8" x 10"	ca. 85 plates/h

Image sizes in pixels

Cassette sizes	Standard matrix		High resolution	
	Matrix	Pixel/mm	Matrix	Pixel/mm
35 cm x 43 cm	1760 x 2140	5	3520 x 4280	10
35 cm x 35 cm	1760 x 1760	5	3520 x 3520	10
24 cm x 30 cm	1576 x 1976	6,7	2364 x 2964	10
18 cm x 24 cm	1770 x 2370	10	1770 x 2370	10
10" x 12"	1670 x 2010	6,7	2505 x 3015	10
8" x 10"	2000 x 2510	10	2000 x 2510	10
Grey level depth when reading: 10 bits/pixel (1024 grey levels)				

Labels

Plate reader

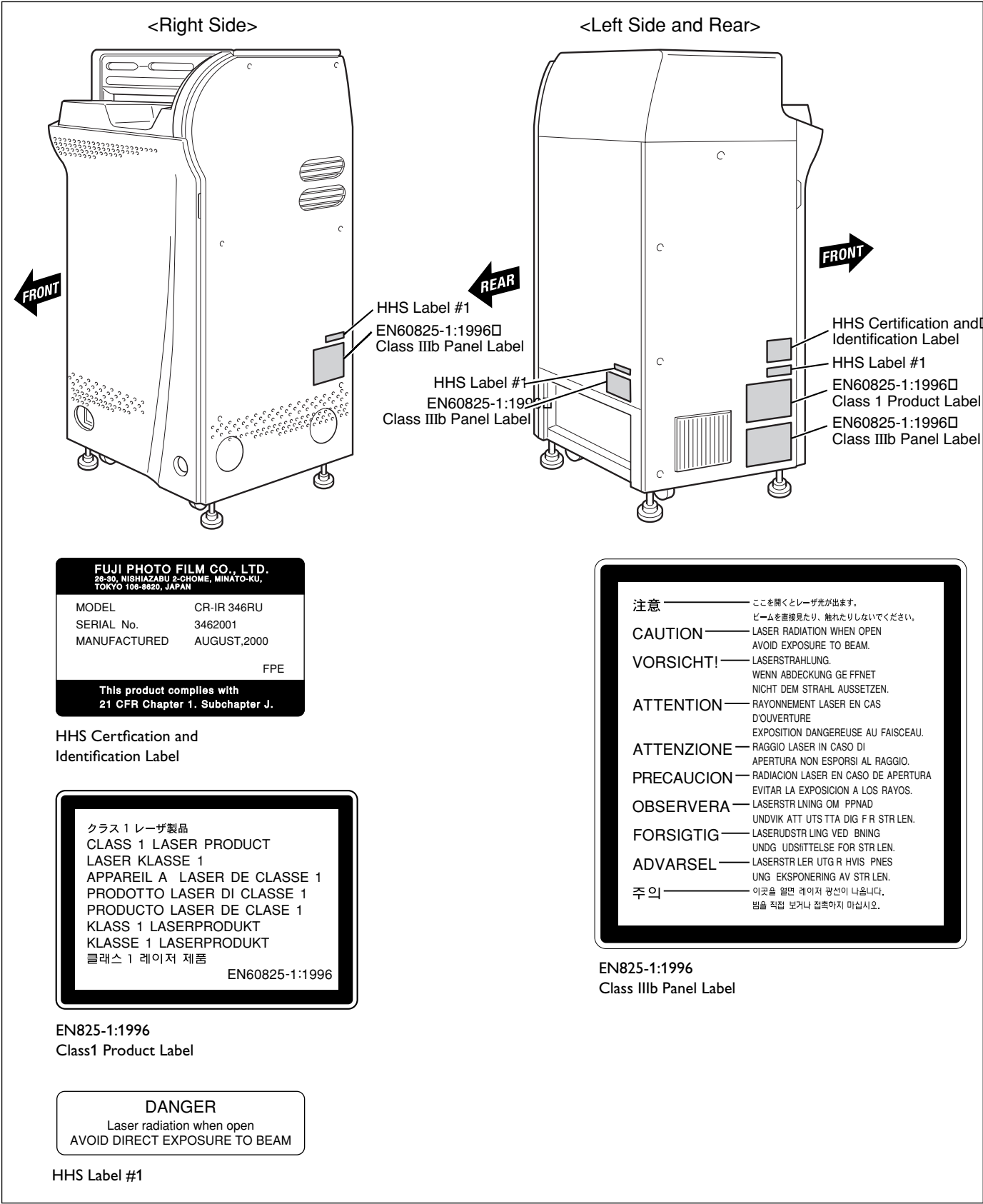


Fig. 6.21 Labels on Compagno Image Plate reader

6.3 PCR CosimaX/PCR Corado

The following chapter describes how to operate the PCR CosimaX and the PCR Corado.

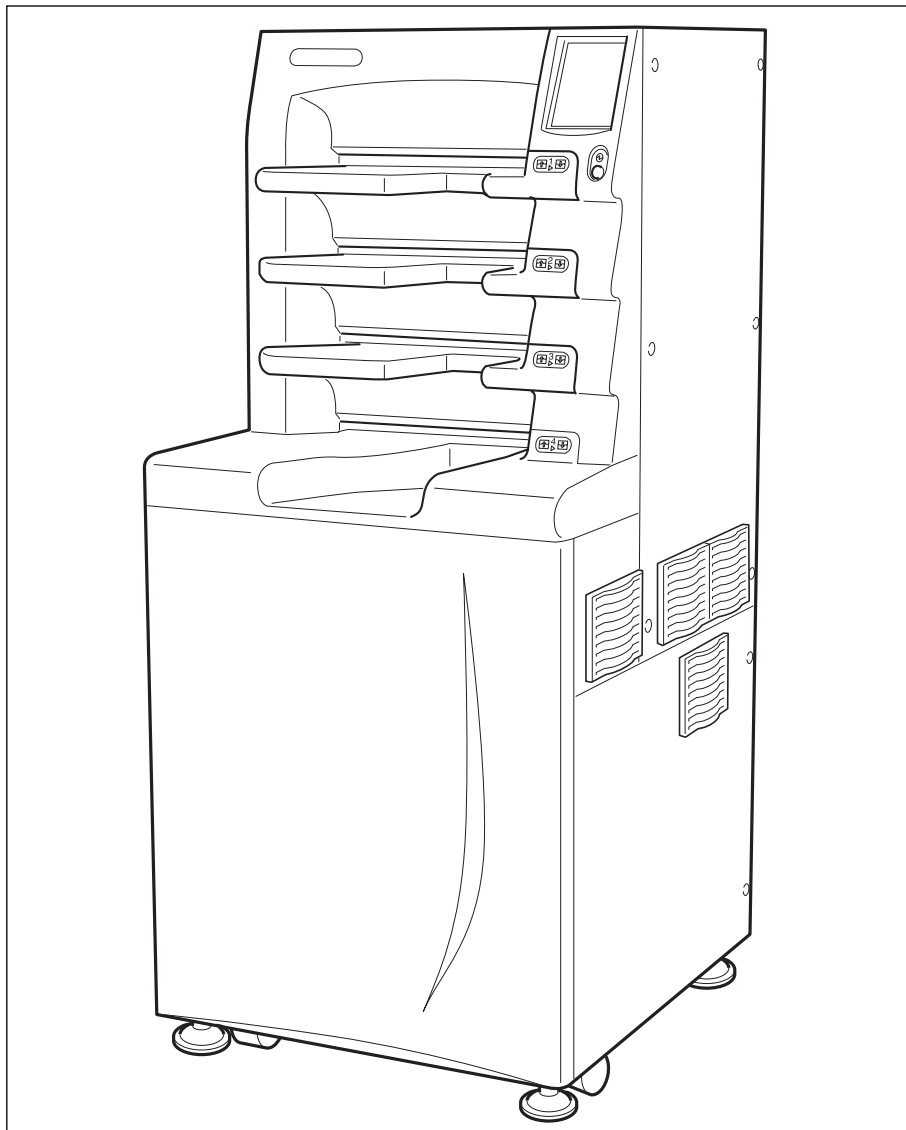


Abb. 6.22 PCR CosimaX and PCR Corado

6.3.1 System Overview

Differences between the two device types

The PCR CosimaX and the PCR Corado are identically designed but differ in their range of applications and the type of image plates they use. The PCR Corado is suitable for all conventional examinations such as bone, lung and stomach exposures. Thanks to its higher resolution, the PCR CosimaX can also be used in the field of mammography and for the diagnosis of rheumatism. For this purpose, special high-resolution mammography image plates are used which can be read on both sides by CosimaX. These mammography cassettes cannot be processed in the PCR Corado.

Hardware

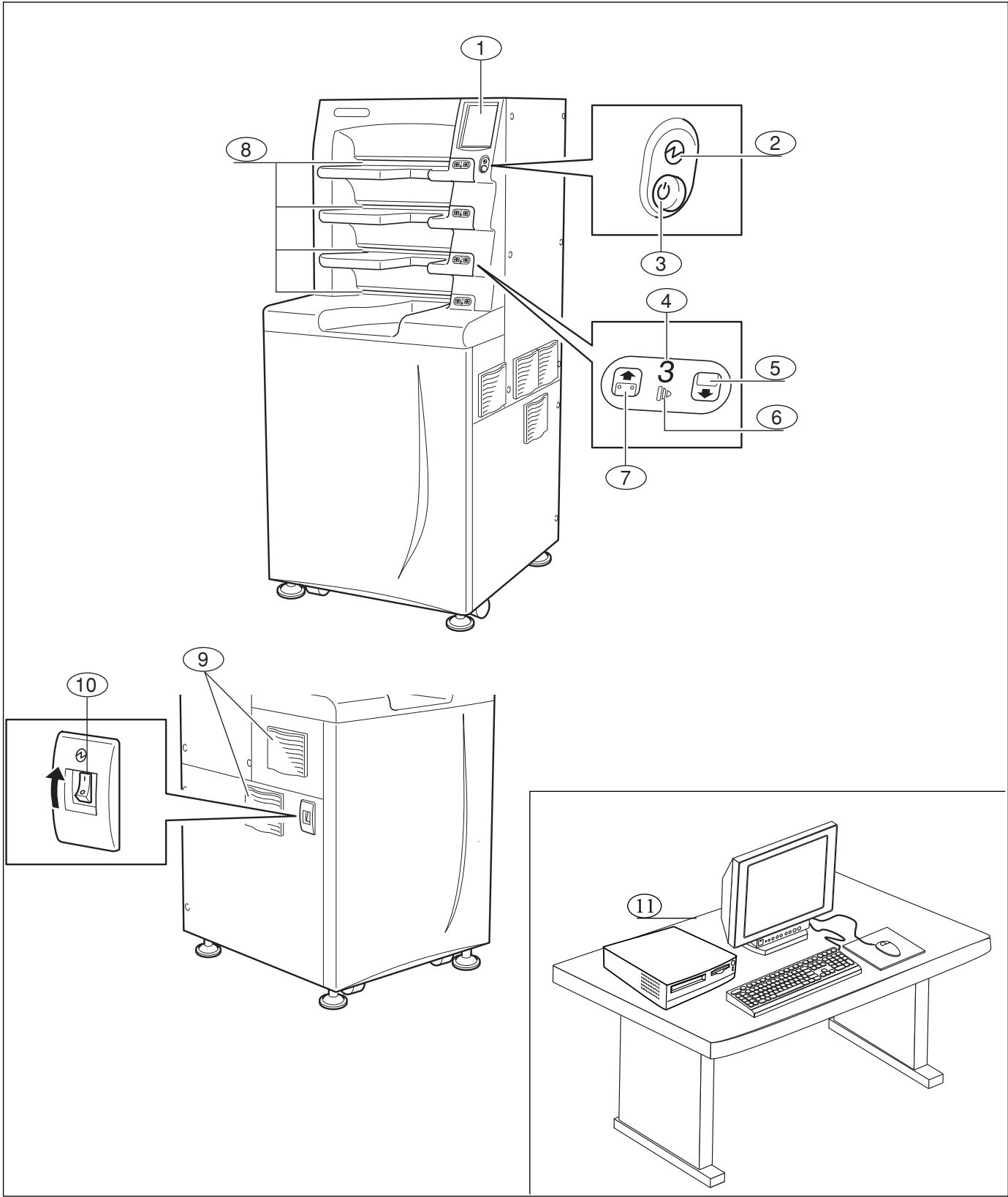


Abb. 6.23 PCR CosimaX/PCR Corado

Item	Use
1	Control panel Touch-sensitive control panel of the image plate reader (touch screen)
2	Pilot lamp Lights up green when the main switch is set to position 'I' (on) and the power supply is available. As the main switch normally remains switched on, the pilot lamp also glows continuously.
3	Power switch Switches on the image plate when the main switch is set to position 'I' (on).
4	Cassette compartment number
5	Unload lamp Flashes blue when cassette processing has finished. The cassette can now be removed.
6	Process indicator Flashes when the cassette is being processed by the image plate reader. During this time the cassette is locked in the cassette compartment
7	Load lamp Lights up green when, after switching on or unloading, the image plate reader is ready to accept a new cassette. If it is not lit up do not insert any cassettes.
8	Four cassette compartments Used for simultaneously processing a maximum of four cassettes.
9	Dust filter A dust filter is installed in front of the ventilator.
10	Main switch Always remains in position 'I'.
11	Preview console (see page 161) Every image plate reader is connected to a Preview console.

Main window

The following figure shows the main window of the Cosima X/Corado which automatically appears after switch-on. It shows the most important displays and is also the starting point for selecting other functions. The other windows are described later on in connection with individual tasks.

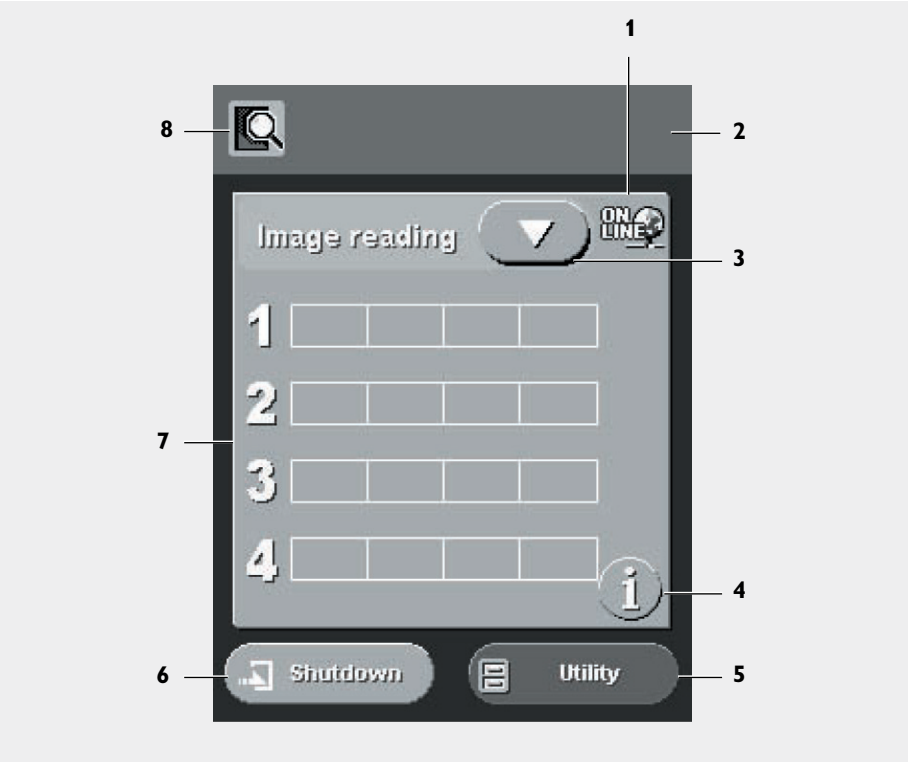











Abb. 6.24 Main window

Item	Use
1	Connection status to the Preview console  :There is a connection to the Preview console.  :There is no connection to the Preview console.
2	Display panel for error messages When the image plate reader shows a deviation from its normal state, the background colour changes to yellow and an error message appears.
3	Button for selecting mode This button is used for selecting a particular operating mode, such as primary or secondary erasure. The selection made is always valid for the next cassette that is subsequently inserted into a cassette compartment.
4	Info
5	Utility button Calls up utilities (see page 146)
6	Shutdown button (see page 137)

Item	Use
7	<div><div><div>Cassette compartments with progress indicator</div><div>The processing status of a cassette is indicated in four bars using a progress indicator. Basically, reading processes are shown in green and erasure processes (primary/secondary) are indicated in orange.</div><div>Progress indicators</div><div><div><div></div><div>Initial state: there is no cassette in the cassette compartment. The load lamp for the cassette compartment is lit up.</div><div></div></div><div><div><div></div><div>The cassette has been accepted; preparing for reading. The process indicator is lit up.</div><div></div></div><div><div><div></div><div>The reading process is starting – preparing for erasure. The process indicator is lit up.</div><div></div></div><div><div><div></div><div>The erasure process is starting – the erasure process is finished. The process indicator is flashing.</div><div></div></div><div><div><div></div><div>Processing is complete; removal of the cassette is expected. The unload lamp is flashing.</div><div></div></div></div></div></div></div></div></div></div>
8	<div><div><div>Mode indicator</div><div>Shows the mode selected for the next cassette to be inserted into a cassette compartment.</div><div><div> : Reading image plate.</div><div> : Erasing image plate.</div></div></div></div>

6.3.2 Switching on the Image Plate Reader

Further information on this subject can be found in the section „PCR System – Switch-on Sequence“ on page 27

NOTE *Do not switch the image plate reader back on immediately after switching off. Wait for at least 5 seconds before doing so.*

The pilot lamp on the control panel of the image plate reader lights up.

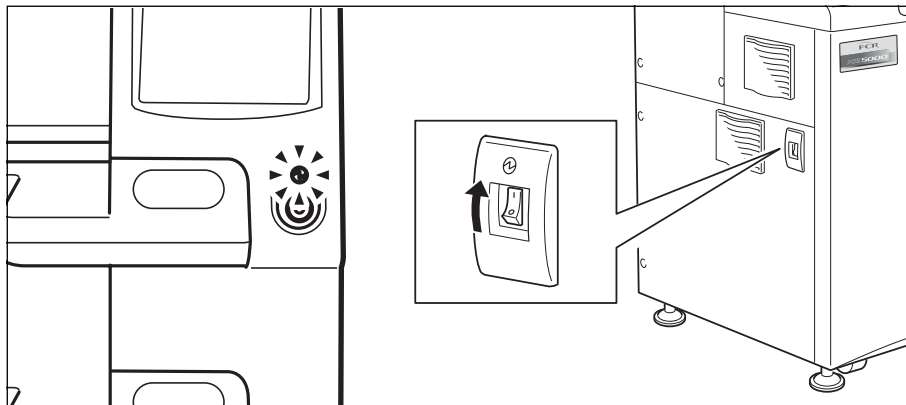


Abb. 6.25 Pilot lamp lights up

If the pilot lamp does not light up then the main switch is possibly not switched on. In this case set the main switch to position 'I' (on).

- 1 Switch on the image plate reader using the power switch on the control panel.

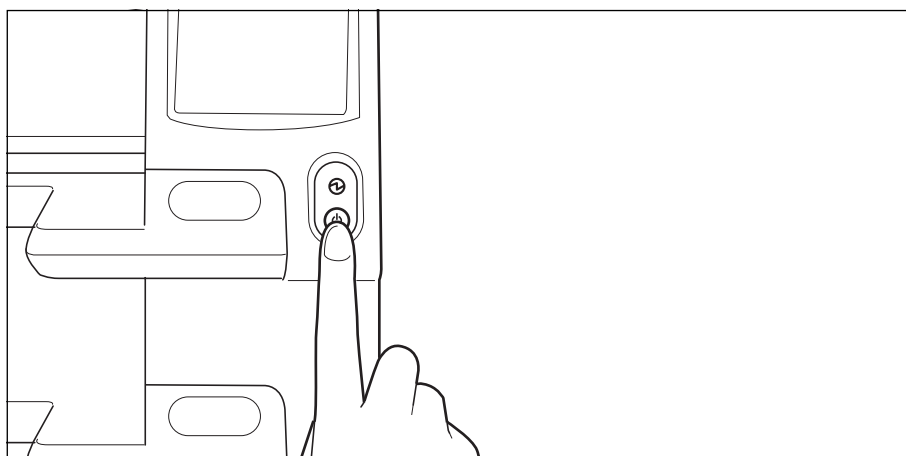


Abb. 6.26 Switching on the image plate reader

- The operating system loads the necessary programme and carries out a self test. Various displays appear.

The standard start-up procedure is finished when the main window appears.

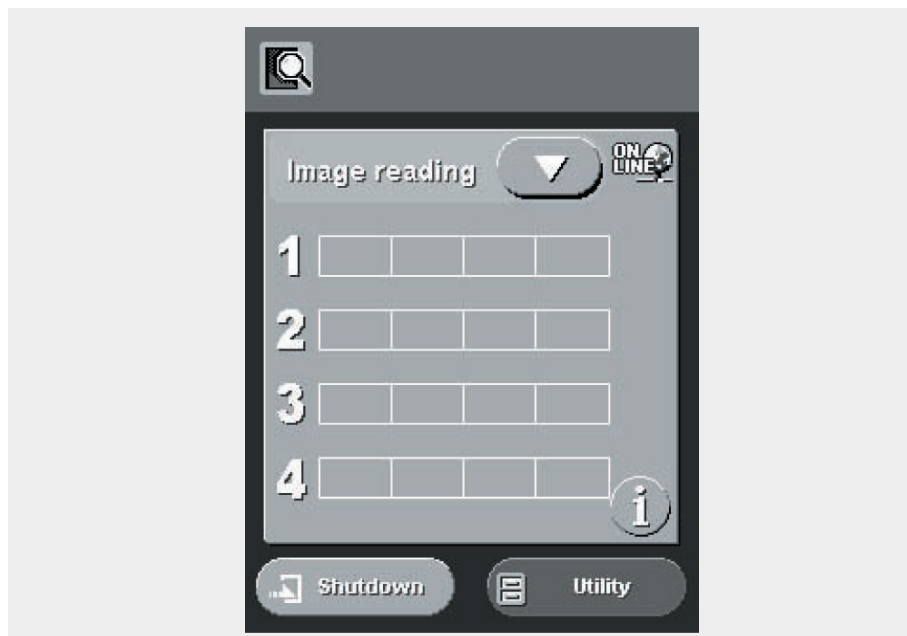
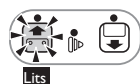


Abb. 6.27 Main window

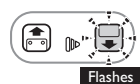


The image plate reader is ready for use when the load lamps of the cassette compartments are lit up.

6.3.3

Switching off the Image Plate Reader

Further information on this subject can be found in the section „PCR System – Switch-off Sequence“ on page 27



- 1 Make sure that the processing of all cassettes is finished (unload lamps are flashing).
- 2 Then remove all cassettes from the cassette compartments
- 3 Touch the "Shutdown" button in the main window.

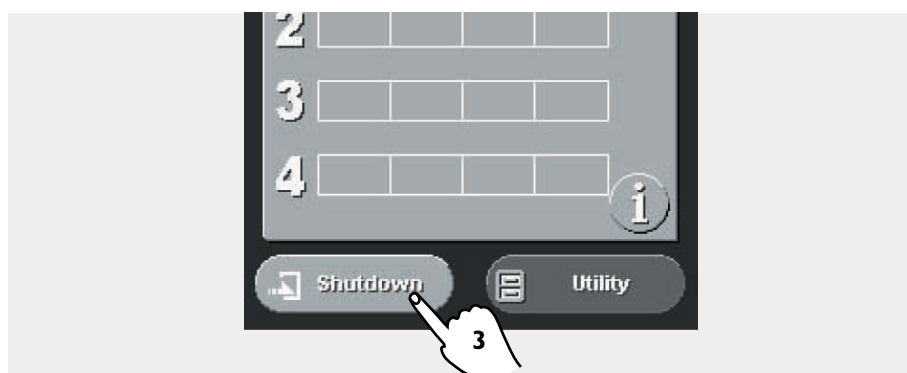


Abb. 6.28 Switching off the image plate reader

- The following confirmation window appears.

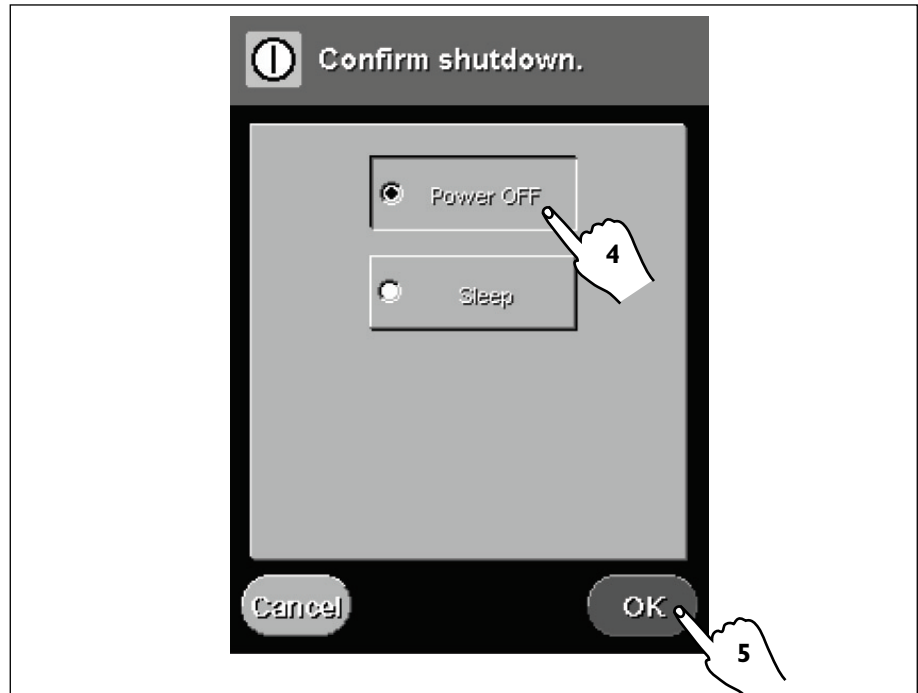


Abb. 6.29 Confirmation window

- 4 Touch the "Power OFF" button
- 5 and then "OK".

After a short time the image plate reader switches off automatically. The main switch can be left switched on.

6.3.4 Inserting a Cassette

The image plate reader allows continual processing of the radiological examinations which have been carried out. You can insert cassettes into the free cassette compartments in any order, the image plate reader processes the cassettes in the order in which they are inserted.

If you want to read a cassette you have to make sure that the barcode on the image plate has already been scanned in the **PCR terminal**. The exposure on the image plate must correspond to the examination selected on the PCR terminal. Further information on erasing the image plates can be found under „Erasing Image Plates Unused for Some Time“ on page 144.

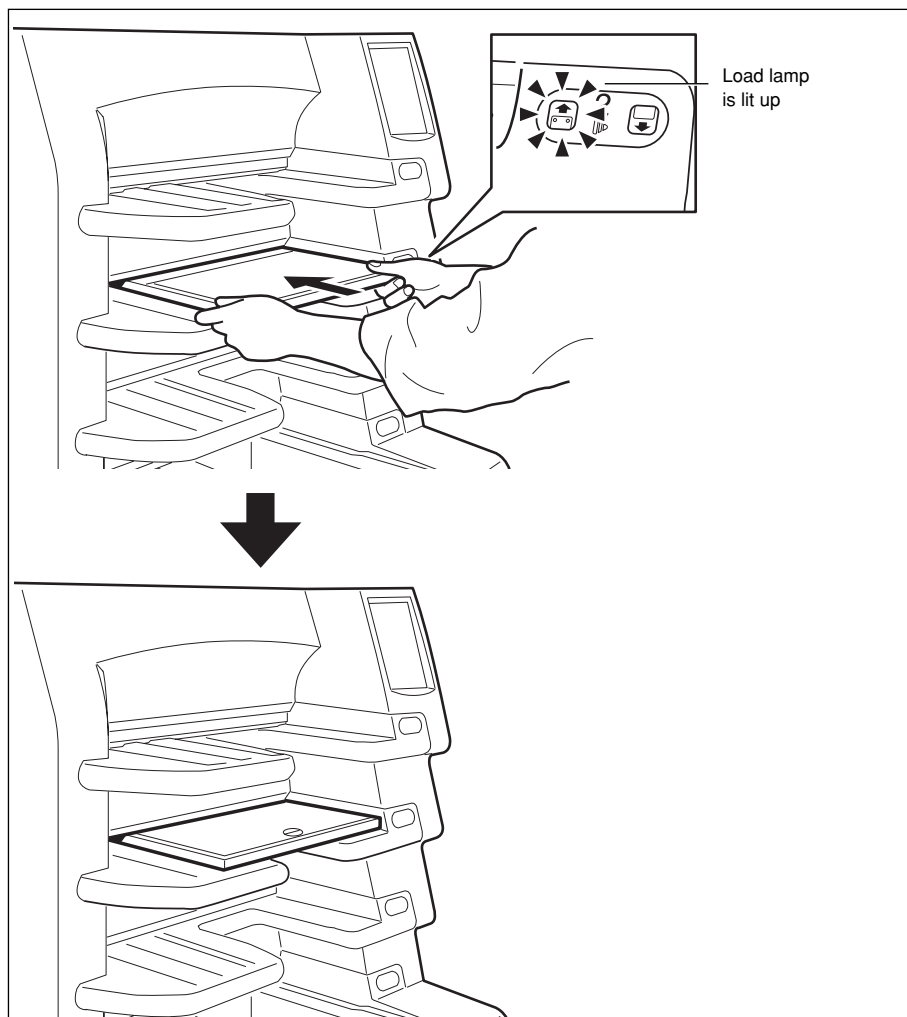


DANGER

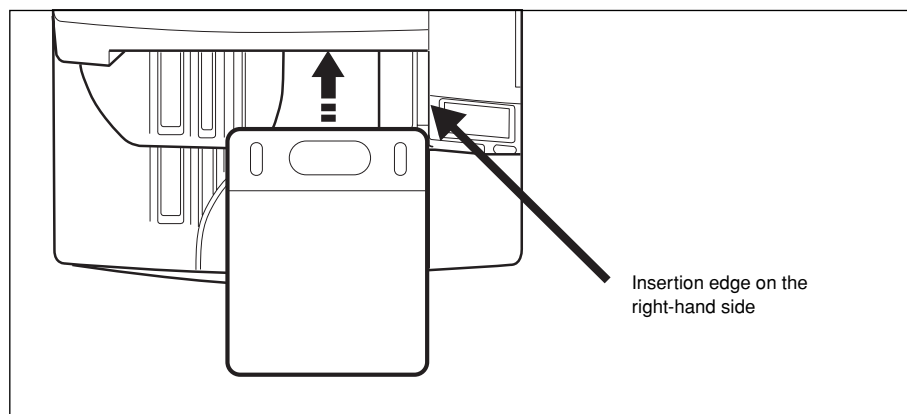
- *The plate reader can be damaged if the cassette is not inserted properly. Make absolutely sure that the cassettes are pushed in straight and on the correct side, as described here.*
- *Before insertion remove all exposure markers that have been stuck onto the cassette.*

Inserting the cassette

- 1 Turn the cassette so that the front of the cassette is facing upwards (barcode window facing upwards and forwards).
- 2 Check that the load lamp for the cassette compartment is lit up.
- 3 Place the cassette in the cassette compartment so that the front of the cassette is facing upwards.

**Abb. 6.30** Inserting the cassette

- 4 Slide the cassette along the **insertion edge on the right-hand side** until it snaps into place in the cassette compartment.

**Abb. 6.31** Cassette on the insertion edge

NOTE Do not insert cassettes into the cassette compartments in the following ways.

Wrong: The cassette is not on the insertion edge.

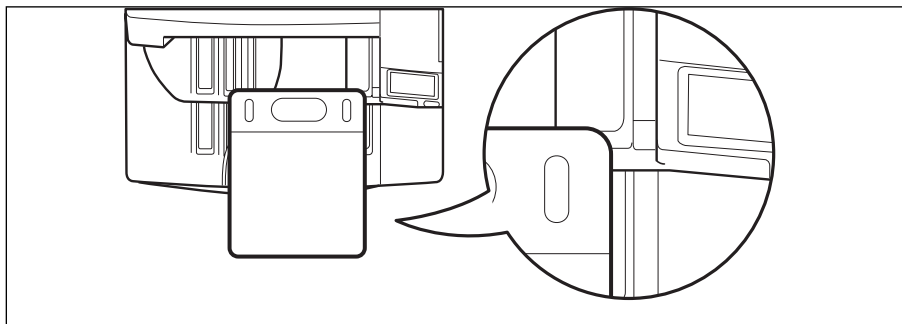


Abb. 6.32 Wrong: Gap between insertion edge and cassette

Wrong: Cassette is at an angle.

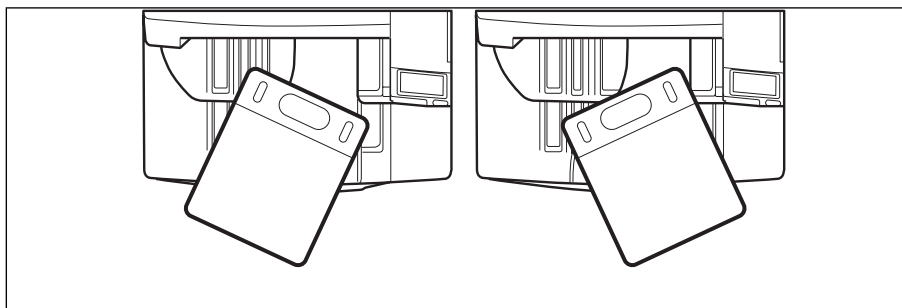
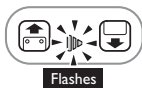


Abb. 6.33 Wrong: Cassette at an angle



When the cassette snaps into place properly in the cassette compartment, the load lamp of the cassette compartment goes out and the process indicator lights up. Reading of the image plate starts automatically. During this process the cassette is locked into place in the cassette compartment and cannot be removed. The process indicator is shown on the screen of the Preview console.

Processing of the cassette is finished when the unload lamp of the cassette compartment lights up and the complete processed image is shown on the screen of the Preview console.

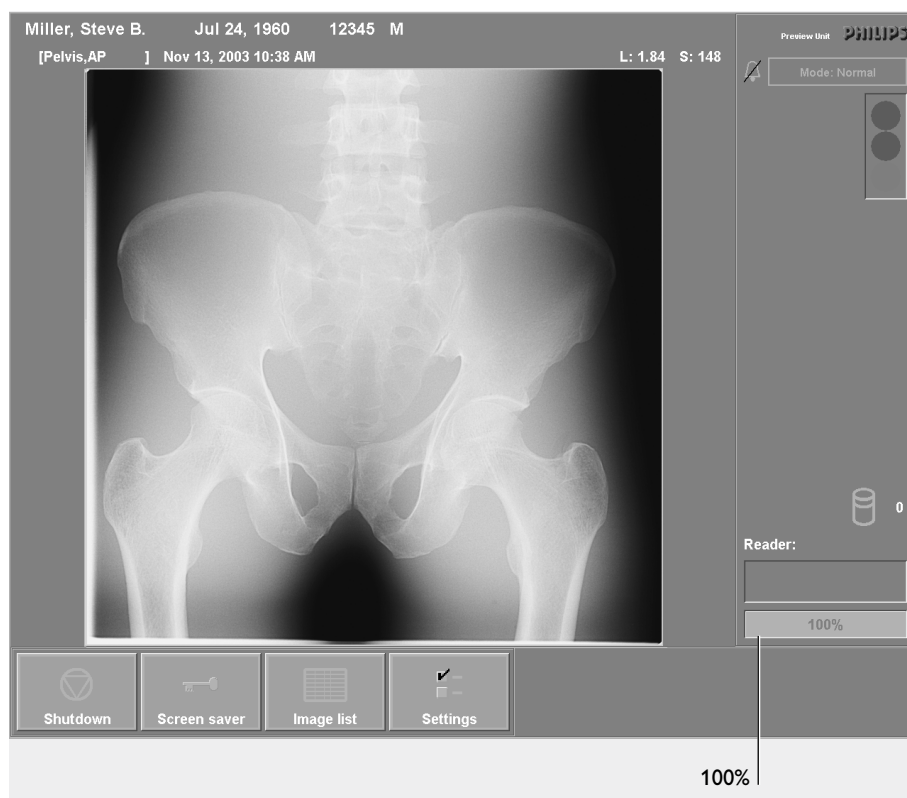


Abb. 6.34 Reading process is complete

6.3.5 Unloading the Cassette

- 1 Check that the blue unload lamp of the cassette compartment is flashing.

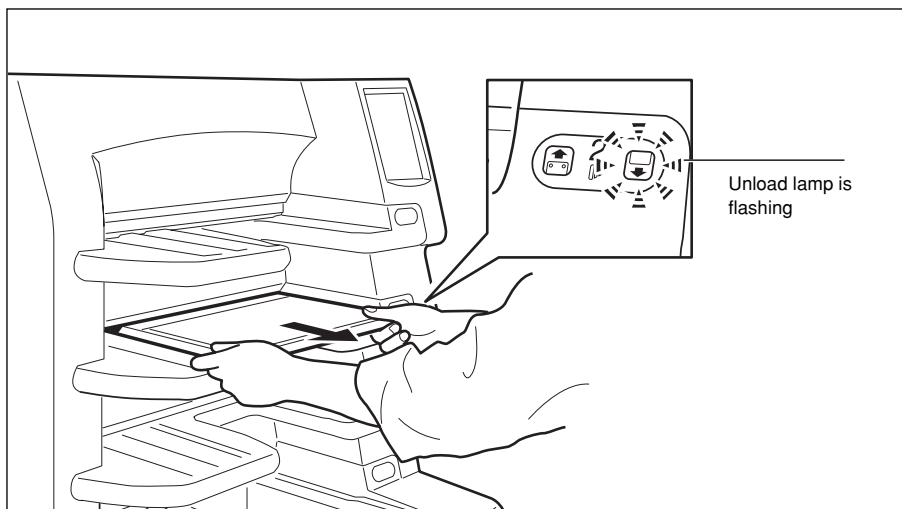


Abb. 6.35 Unload lamp

- 2 Remove the cassette slowly from the cassette compartment, keeping it straight.
 - The unload lamp goes out and the load lamp lights up.

The cassette can immediately be used for a new exposure. The cassette compartment is ready for the insertion of a new cassette. The X-ray image that has been read has already been transmitted to the Preview console. For further information on this topic refer to the section „Working in Normal Mode“ on page 170.

6.3.6 Procedure with Unregistered Cassettes

If you ever forget to scan the barcode of a cassette before loading it into the image plate reader, the following occurs.

A corresponding error message appears on the screen of the image plate reader, stating that the image plate cannot be read. The data necessary for reading the cassette is not recognised by the image plate reader. At the same time the following general error message appears on the Preview console.

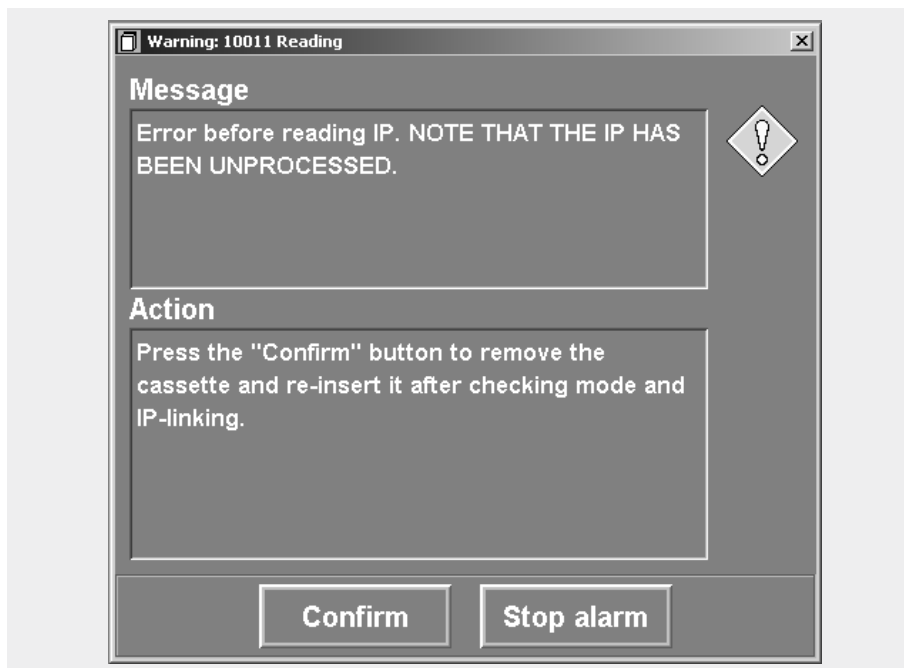


Abb. 6.36 Error message on the Preview console

Operating with unregistered cassettes

- 1 Touch the "Stop alarm" button on the screen of the image plate reader and confirm that you want to unload the cassette by pressing the "Remove cassette" button.
 - The error message disappears and the cassette is unloaded.
- 2 Remove the cassette and scan the barcode with the correct patient and examination data into the PCR terminal.
- 3 You can now reload this cassette into a free cassette compartment.

6.3.7 Erasing Image Plates Unused for Some Time

In routine operation the image plates are always automatically erased after reading. However, if a cassette has not been used for **8 hours** or longer, the image plate that it contains must undergo the process of secondary erasure before its next use. Here the image plate is not read but only erased.

NOTE *The image plates absorb the natural radiation over a period of time, which means that an increase in image noise is to be expected for images with low exposure levels. For applications with a low radiation dose in particular you should carry out the following secondary erasure process after longer periods of storage.*

Erasing image plate

- 1 Touch the button for selecting the mode in the main window of the screen on the image plate reader.

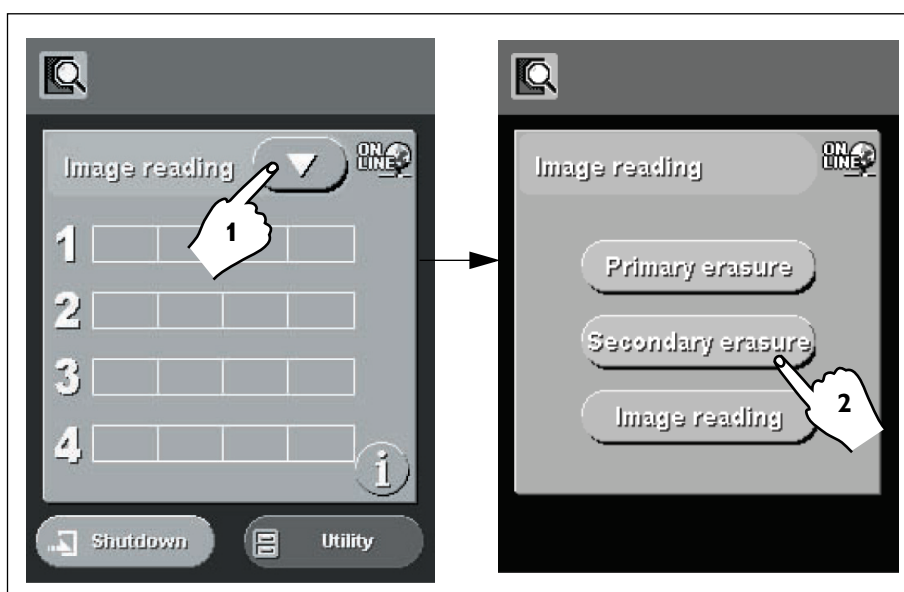


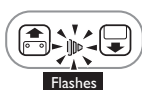
Abb. 6.37 Main window and selection window

- 2 Touch the "Secondary erasure" button in the selection window that appears.
 - The main window appears again.

Now the Erasure mode has been activated for the next cassette to be inserted into any cassette compartment. After processing the cassette, the cassette compartment will switch back to the Standard mode "Image reading". The selected Erasure mode is always valid for one cassette only and must be re-selected for every additional cassette.

- 3 Insert the cassette into the cassette compartment (see page 138).

During erasure the process indicator for the particular cassette compartment flashes. The corresponding progress indicator appears on the screen of the Preview console. When the unload lamp of the cassette compartment lights up the erasure process is complete. The cassette can be removed and can be used for a new exposure immediately.



6.3.8

Erasing Incorrectly Exposed Image Plates

In routine operation the image plates are always automatically erased after reading. However, after incorrect exposure or overexposure a special, primary erasure must be performed. Here the image plate is not read but only erased.

NOTE

If the image plate reader recognises an overexposed image plate, the corresponding error message appears on the screen of the image plate reader. Incorrectly exposed image plates may not be used for any further exposures for approx. 16 hours after undergoing primary erasure.

Erasing image plates

- 1 Touch the button for selecting the mode in the main window of the screen on the image plate reader.

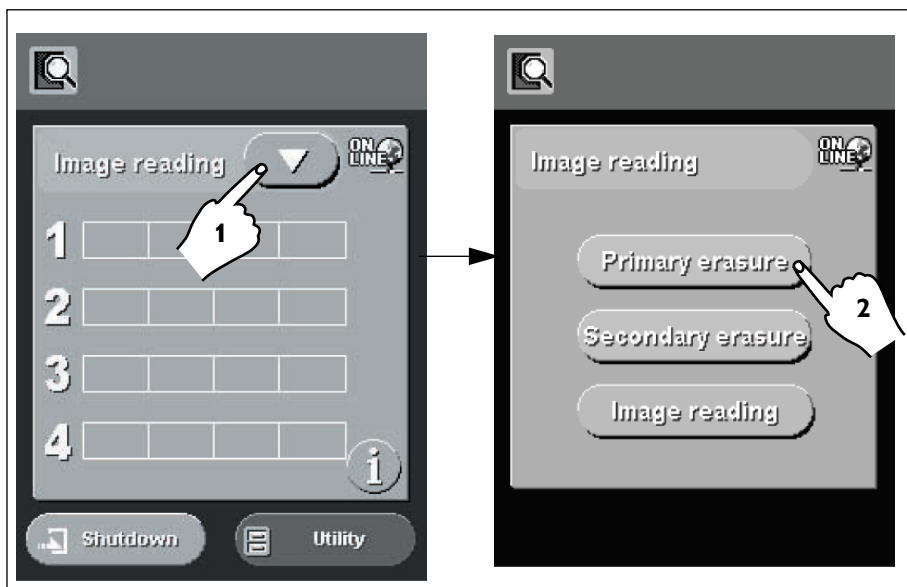


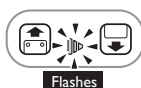
Abb. 6.38 Main window and selection window

- 2 Touch the "Primary erasure" button in the selection window that appears.
 - The main window appears again.

Now the Erasure mode has been activated for the next cassette to be inserted into any cassette compartment. After processing the cassette, the cassette compartment will switch back to the Standard mode "Image reading". The selected Erasure mode is always valid for one cassette only and must be reselected for every additional cassette.

- 3 Insert the cassette in the cassette compartment (see page 138).

During erasure the process indicator for the particular cassette compartment flashes. The corresponding progress indicator appears on the screen of the Preview console. When the unload lamp of the cassette compartment lights up the erasure process is complete. The cassette can be removed and can be used for a new exposure immediately.



6.3.9 Using the Utility

The utilities provide an array of functions, outside routine operations, for making special settings or requesting particular operating information.

NOTE Do not insert any cassettes when the utilities have been called up on the screen of the image plate reader.

The utilities are shown in two different registers.

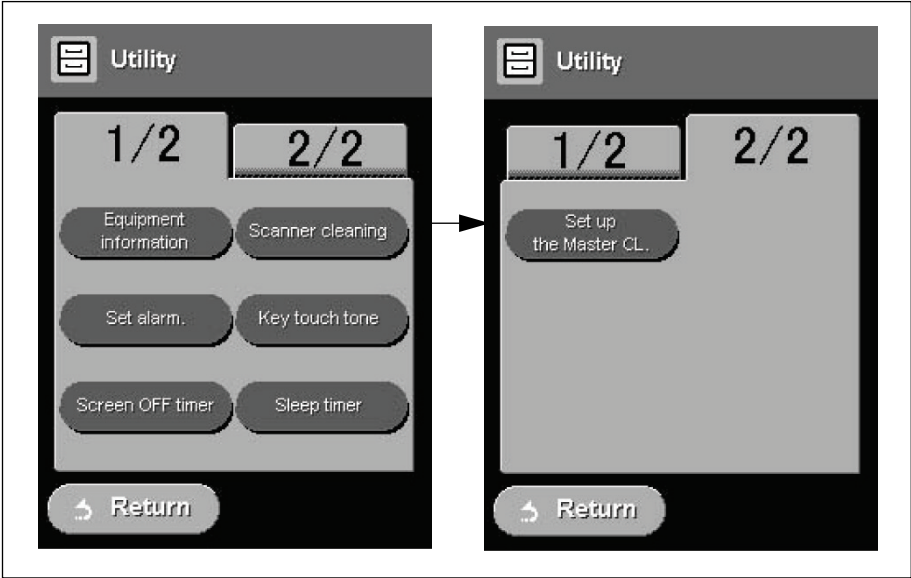


Abb. 6.39 Overview of utilities

Calling up and closing the utilities

You can call up the utilities at any time during routine operation.

Calling up the utilities

- 1 Touch the "Utility" button on the main window of the screen of the image plate reader.

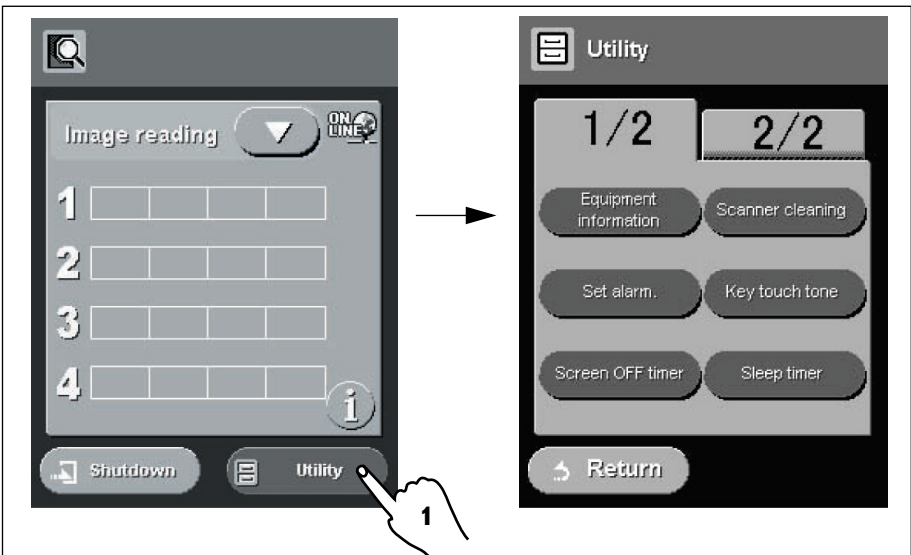


Abb. 6.40 Main window and utilities

Closing the utilities

- 2 Touch the "Return" button in the utilities.

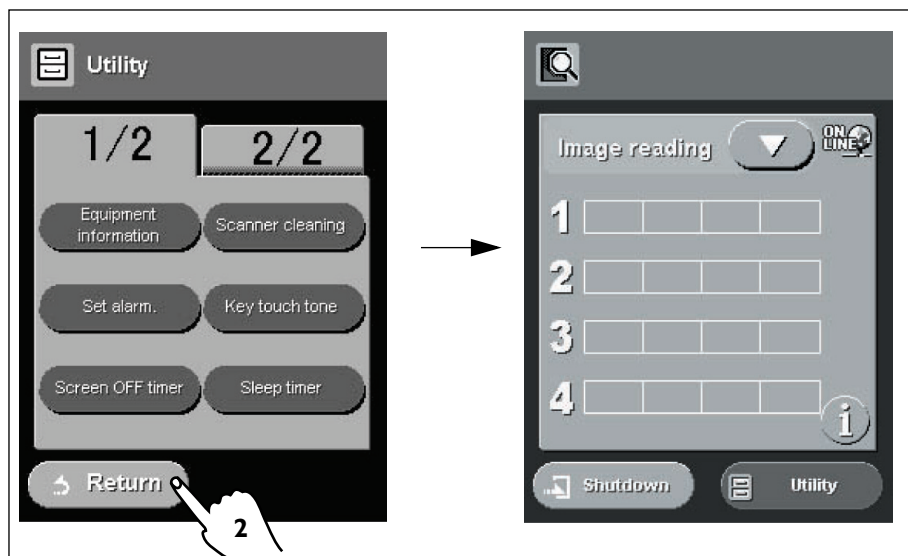


Abb. 6.41 Utilities and main window

The main window appears again.

Displaying information about the equipment

You can request quantitative information with details of the operation of the image plate reader to date.

- 1 Touch the "Equipment information" button in the utilities.

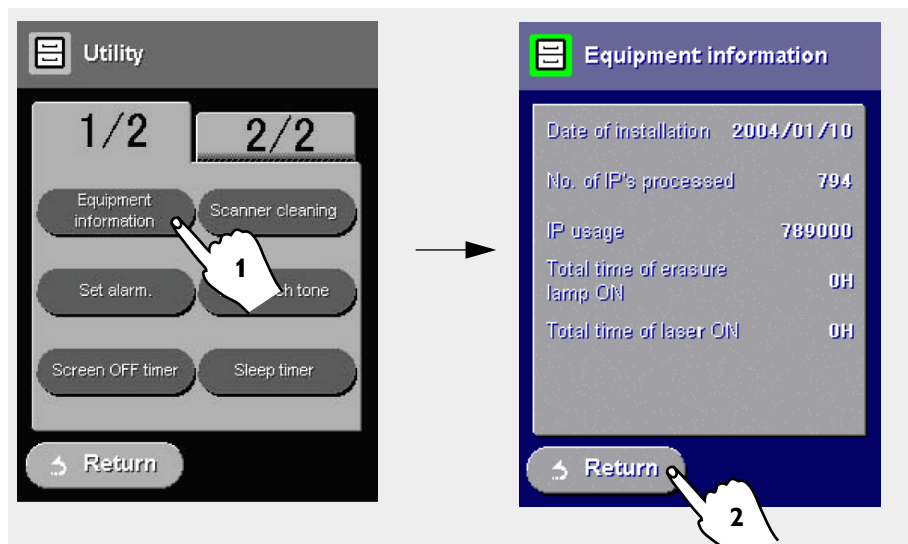


Abb. 6.42 Requesting equipment information

- 2 Touch the "Return" button to return to the starting window of the utilities.

Date of installation

The date when the image plate reader was first put into operation.

No. of IP's processed

The number of image plates that have been read since initial operation.

IP usage

The number of imaged plates erased (without reading).

Total time of erasure lamp ON

The total operating time in hours of the erasure unit since initial operation.

Total time of laser ON

The total operating time in hours of the laser unit (reading) since initial operation.

Setting the warning tone

When an error occurs during operation of the image plate reader an error message appears and, additionally, a warning tone can sound. You can make the following warning tone settings.

- 1 Touch the "Set alarm" button in the utilities.

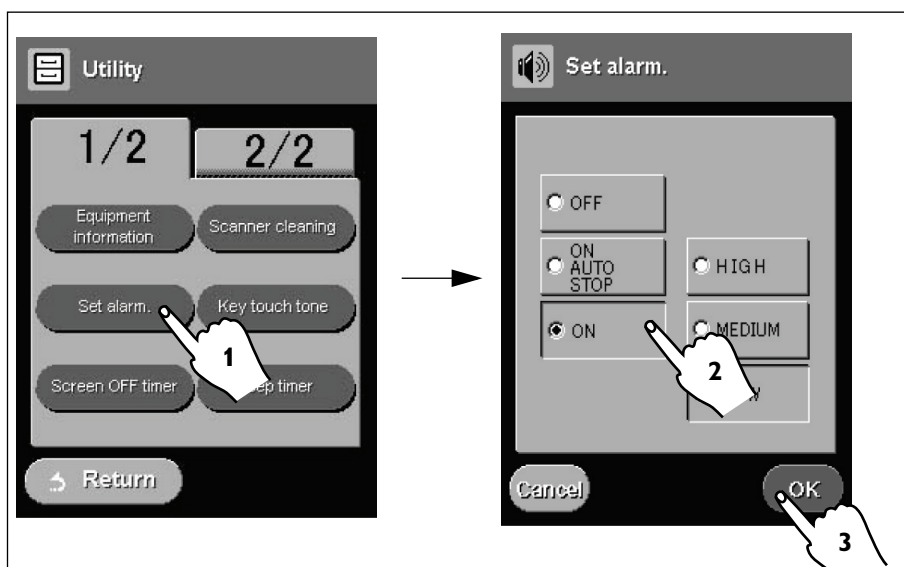


Abb. 6.43 Setting the warning tone

- 2 Select the desired option.
- 3 Then touch the "OK" button.

The screen returns to the starting window of the utilities. A warning tone sounds according to the settings made (unless you have deactivated it).

Off

The warning tone is completely deactivated. No signal will sound when an error message appears.

On Auto Stop

The warning tone sounds for a certain period of time and then switches off automatically.

On

The warning tone is activated and must be manually switched off when it sounds.

High

The warning tone sounds at the highest volume.

Medium

The warning tone sounds at medium volume.

Low

The warning tone sounds at the lowest volume.

OK

Adopts the settings made and returns to the starting window of the utilities.

Setting the screen saver

If the screen is not touched for a certain period of time, the display can be turned black using the screen saver. The following screen saver settings can be made.

- 1 In the utilities touch the "Screen OFF timer" button.

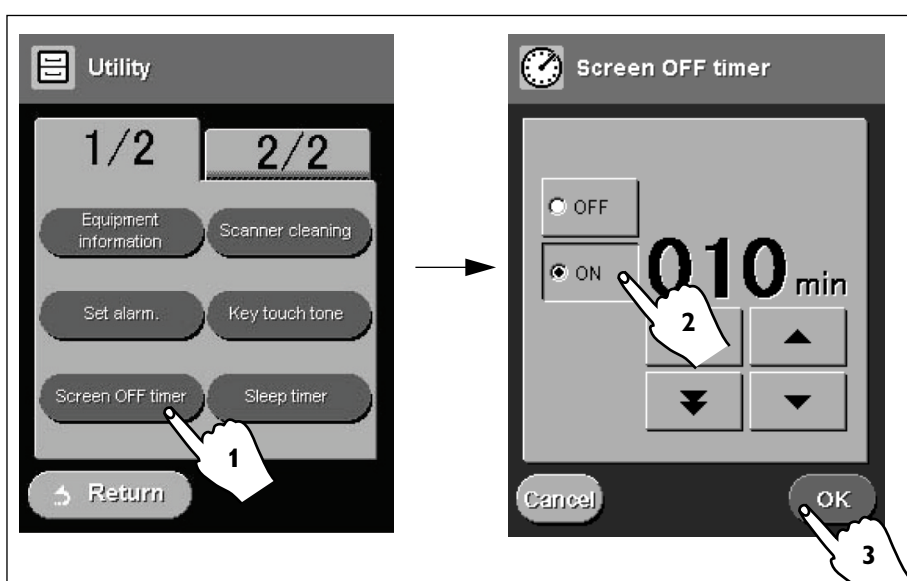


Abb. 6.44 Setting the screen saver

- 2 Select the desired option.
- 3 Then touch the "OK" button.

The screen returns to the starting window of the utilities.

Off

The screen saver is deactivated. The display on the screen does not turn black.

On

The screen saver is activated. The screen automatically turns black on expiry of the set time.

010 min

Shows the set time after which the screen saver is activated.



Increases/reduces the ten's digit of the minutes set, i.e. in increments of 10 minutes.



Increases/reduces the unit's digit of the minutes set, i.e. in increments of 1 minute.

Cancel

Cancels the procedure

OK

Adopts the settings made and returns to the starting window of the utilities.

Cleaning the scanner

The image plate reader has a facility for cleaning the scanner unit. Philips recommends cleaning the scanner at regular intervals. The cleaning display always appears in the following circumstances:

- in there is a significant increase in the S-value under constant exposure conditions over an extended period of time (2 weeks),
- on the appearance of artefacts.

Cleaning the scanner

- 1 Touch the "Scanner cleaning" button in the utilities.

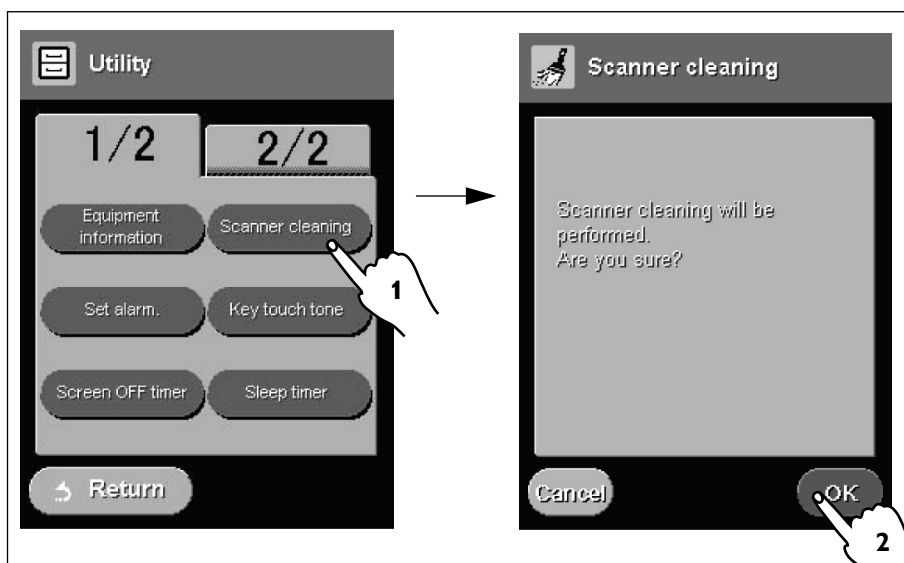


Abb. 6.45 Cleaning the scanner

- The request shown appears.
- 2 Touch the "OK" button.

During the cleaning of the scanner unit the following message appears.

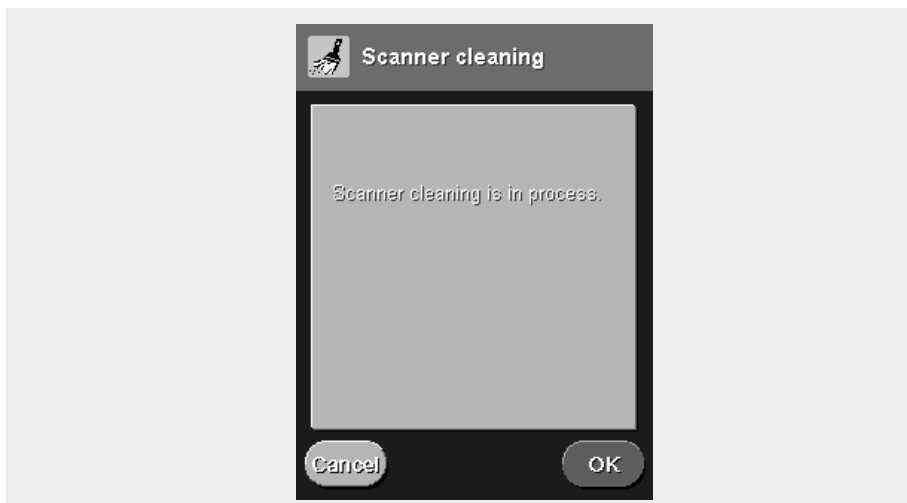


Abb. 6.46 Display during cleaning

The process is complete when the starting window of the utilities reappears on the screen.

Setting the key touch tone

As an acoustic confirmation, a key tone can sound when a button on the screen of the plate reader is touched. The following key tone settings can be made.

- 1 Touch the "Key touch tone" button in the utilities.

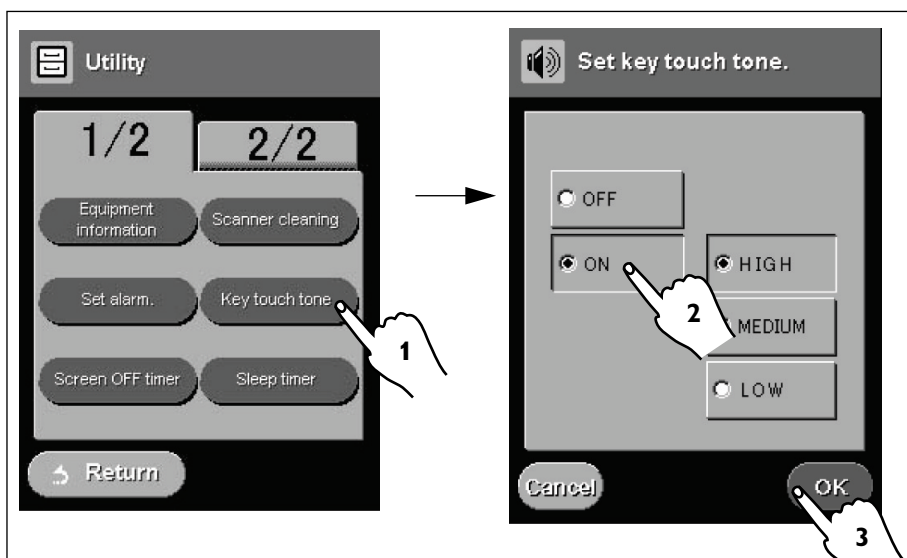


Abb. 6.47 Setting the key touch tone

- 2 Select the desired option.
- 3 Then touch the "OK" button.

The key tone is deactivated. When a button is touched a tone no longer sounds.

Off

The key tone is activated. When a button is touched a tone sounds.

On

The key tone is activated. When a button is touched a tone sounds.

High

The key tone sounds at the highest volume.

Medium

The key tone sounds at medium volume.

Low

The key tone sounds at the lowest volume.

Cancel

Cancels the procedure

OK

Adopts the settings made and returns to the starting window of the utilities.

Setting the Sleeping mode

If the plate reader is not used for an extended period of time or the screen is not touched, the plate reader can be switched to an energy-saving Sleeping mode. You switch from Sleeping mode back to Normal mode by touching the screen. Within 30 seconds the system is ready for use in Normal mode. The following Sleeping mode settings can be made.

- 1 Touch the "Sleep timer" button in the utilities.

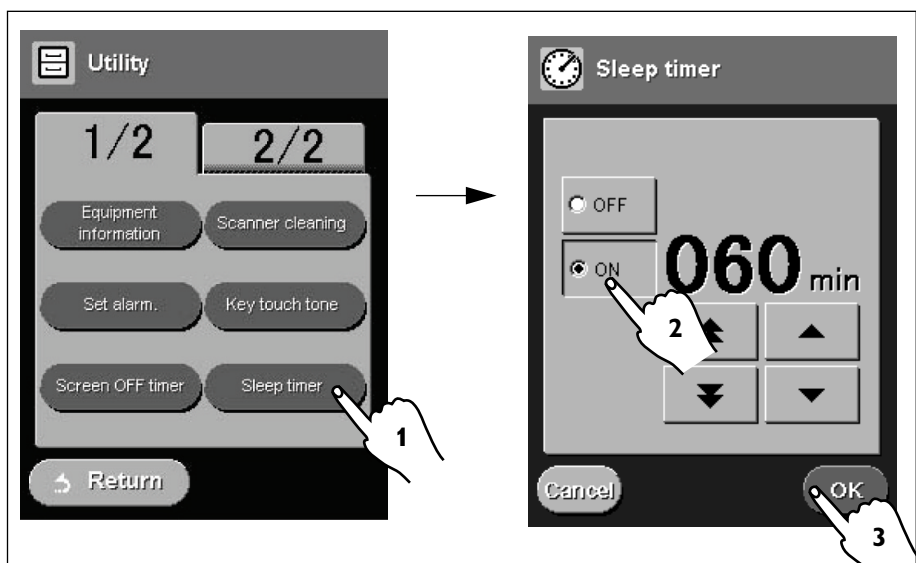


Abb. 6.48 Setting the Sleeping mode

- 2 Select the desired option.
- 3 Then touch the "OK" button.

The screen returns to the starting window of the utilities.

Off

Sleeping mode is deactivated. Even during extended interruptions in operation, the system does not switch to Sleeping mode.

On

Sleeping mode is activated. During an interruption in operation, the plate reader automatically switches to Sleeping mode after expiry of the set time.

060 min

Shows the set time after which Sleeping mode is activated.



Increases/reduces the ten's digit of the minutes set, i.e. in increments of 10 minutes.

Increases/reduces the unit's digit of the minutes set, i.e. in increments of 1 minute.

Cancel

Cancels the procedure

OK

Adopts the settings made and returns to the starting window of the utilities.

Selecting the Preview console

This function is not available in the PCR system. In the PCR system the plate reader is always assigned to a specific Preview console which is displayed here.

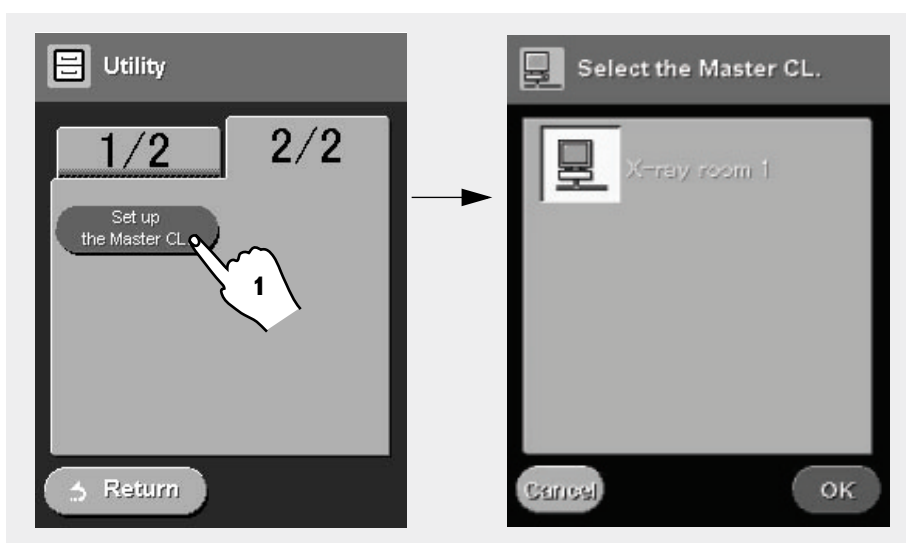


Abb. 6.49 Display of the assigned Preview console

6.3.10 Error Messages

Various error messages may appear during the operation of the plate reader. The following example shows how to proceed in such an event.

Laser power is decreasing

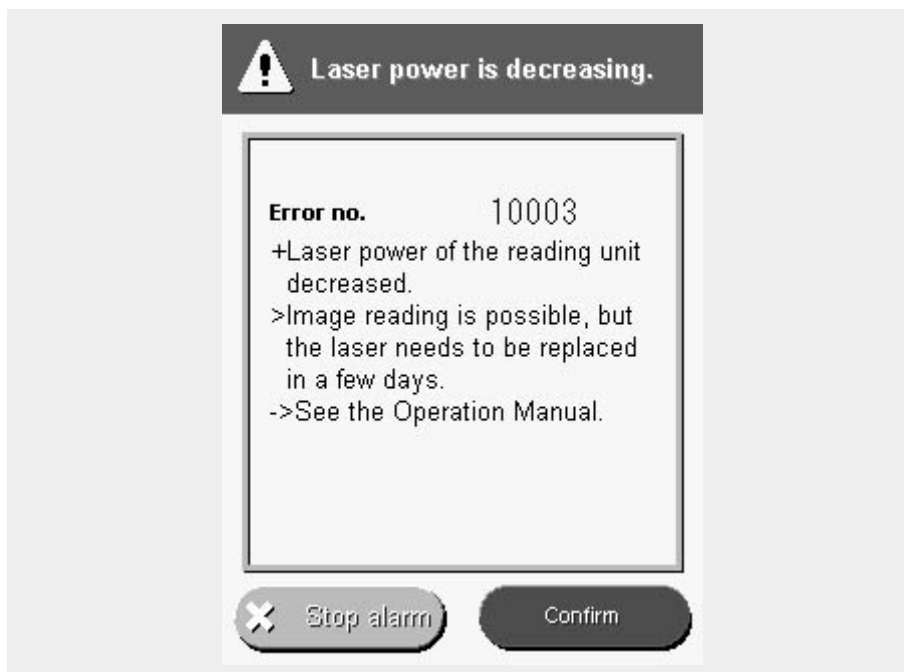


Abb. 6.50 Laser power is decreasing

Cause

The laser unit has become worn.

Action

- 1 Touch the "Stop alarm" touch key
- 2 You can continue operating the system for a few days. The image quality, however, decreases and corresponds to that of exposures with a radiation dose reduced by approx. 20%.

6.3.11 Technical Data CosimaX/Corado

General Data

Merkmal	Angaben
Weight	285 kg
Depth of grey shades when reading	10 bits/pixel (1024 grey steps)
Dimensions	
Height	1480 mm
Breadth	655 mm
Depth	740 mm
Ambient conditions	
In operation	Temperature: + 15°C to + 30°C, Rel. humidity: 40% to 80%, no condensation
For storage and transport	Temperature: 0°C to + 45°C Rel. humidity: 10% to 90%, no condensation
Power supply	
Mains voltage	100 V to 120 V $\pm 10\%$ 50 Hz/60 Hz or 200 V to 240 V $\pm 10\%$ 50 Hz/60 Hz max. 8 A
Nominal power	0,8 kVA

Cassette sizes

The image reader can be adjusted to metric or inch cassette sizes.

Metric setting	Inch setting
35 cm x 43 cm	14" x 17"
35 cm x 35 cm,	14" x 14"
24 cm x 30 cm (or 10" x 12")	10" x 12"
18 cm x 24 cm (or 8" x 10")	8" x 10"
24 cm x 30 cm HR ¹⁾	
18 cm x 24 cm HR ¹⁾	
24 cm x 30 cm HR-BD ²⁾	
18 cm x 24 cm HR-BD ²⁾	

¹⁾ High Resolution

²⁾ High Resolution Basetransparent Detect, CosimaX only (double-sided reading)

Processing times

The following information relates to the processing of an image plate from the automatic unloading through to loading after processing.

Cassette sizes	Processing times
35 cm x 43 cm	ca. 103 plates/h
35 cm x 35 cm	ca. 120 plates/h
24 cm x 30 cm	ca. 128 plates/h
18 cm x 24 cm	ca. 165 plates/h
24 cm x 30 cm HR ¹⁾	ca. 90 plates/h
18 cm x 24 cm HR ¹⁾	ca. 110 plates/h
24 cm x 30 cm HR-BD ²⁾	ca. 65 plates/h ²⁾
18 cm x 24 cm HR-BD ²⁾	ca. 80 plates/h ²⁾
10" x 12"	ca. 128 plates/h
8" x 10"	ca. 165 plates/h

¹⁾ High Resolution

²⁾ High Resolution Basetransparent Detect, CosimaX only (double-sided reading)

Image sizes in pixels

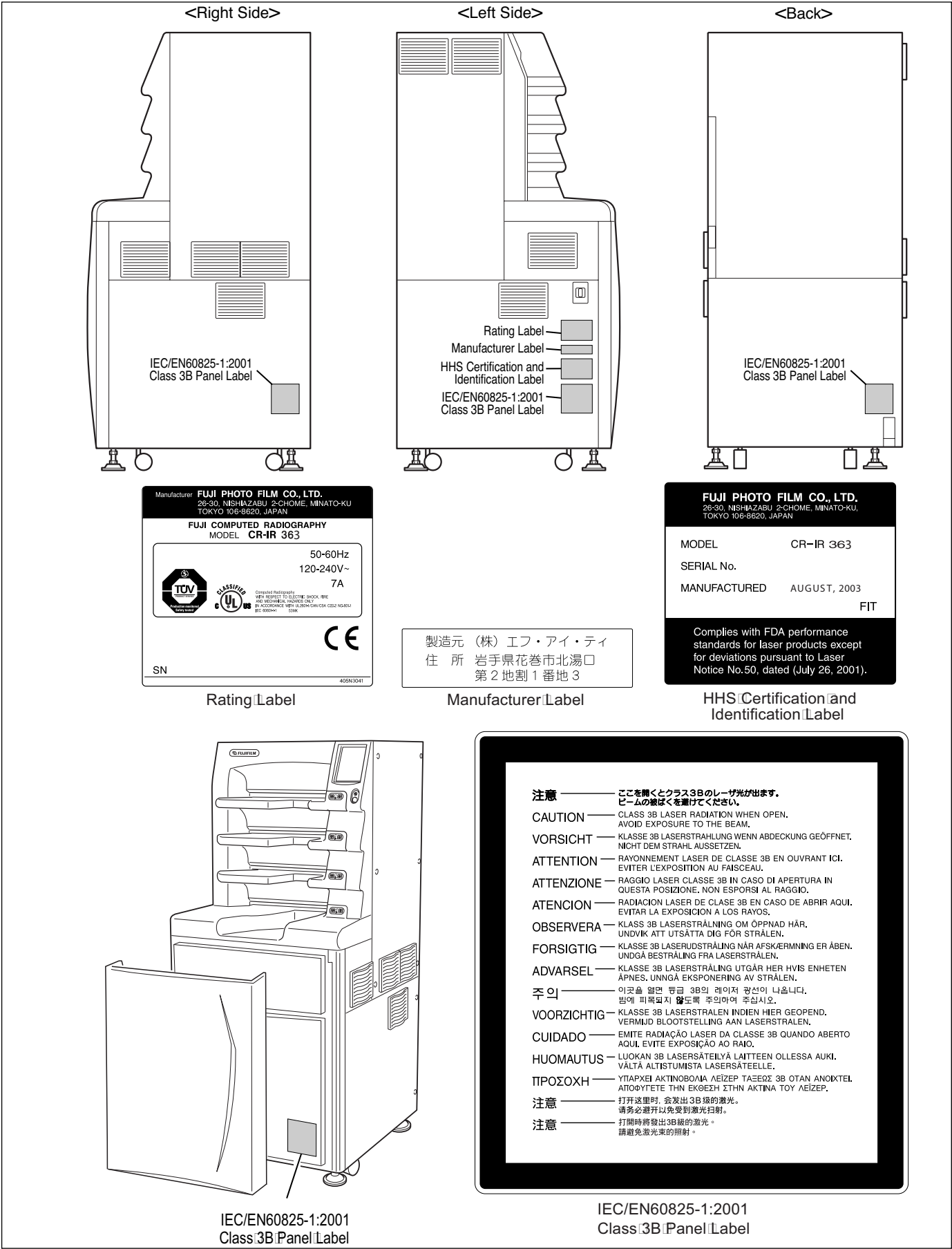
Cassette sizes	Standard matrix		High resolution	
	Matrix	Pixel/mm	Matrix	Pixel/mm
35 cm x 43 cm	1760 x 2140	5	3520 x 4280	10
35 cm x 35 cm	1760 x 1760	5	3520 x 3520	10
24 cm x 30 cm	1576 x 1976	6,7	2364 x 2964	10
18 cm x 24 cm	1770 x 2370	10	1770 x 2370	10
24 cm x 30 cm HR ²⁾	2364 x 2964	10	2364 x 2964	10
18 cm x 24 cm HR ²⁾	1770 x 2370	10	1770 x 2370	10
24 cm x 30 cm HR-BD ³⁾	2364 x 2964	10	4728 x 5928	20 ³⁾
18 cm x 24 cm HR-BD ³⁾	1770 x 2370	10	3540 x 4740	20 ³⁾
10" x 12"	1670 x 2010	6,7	2505 x 3015	10
8" x 10"	2000 x 2510	10	2000 x 2510	10

¹⁾ High density

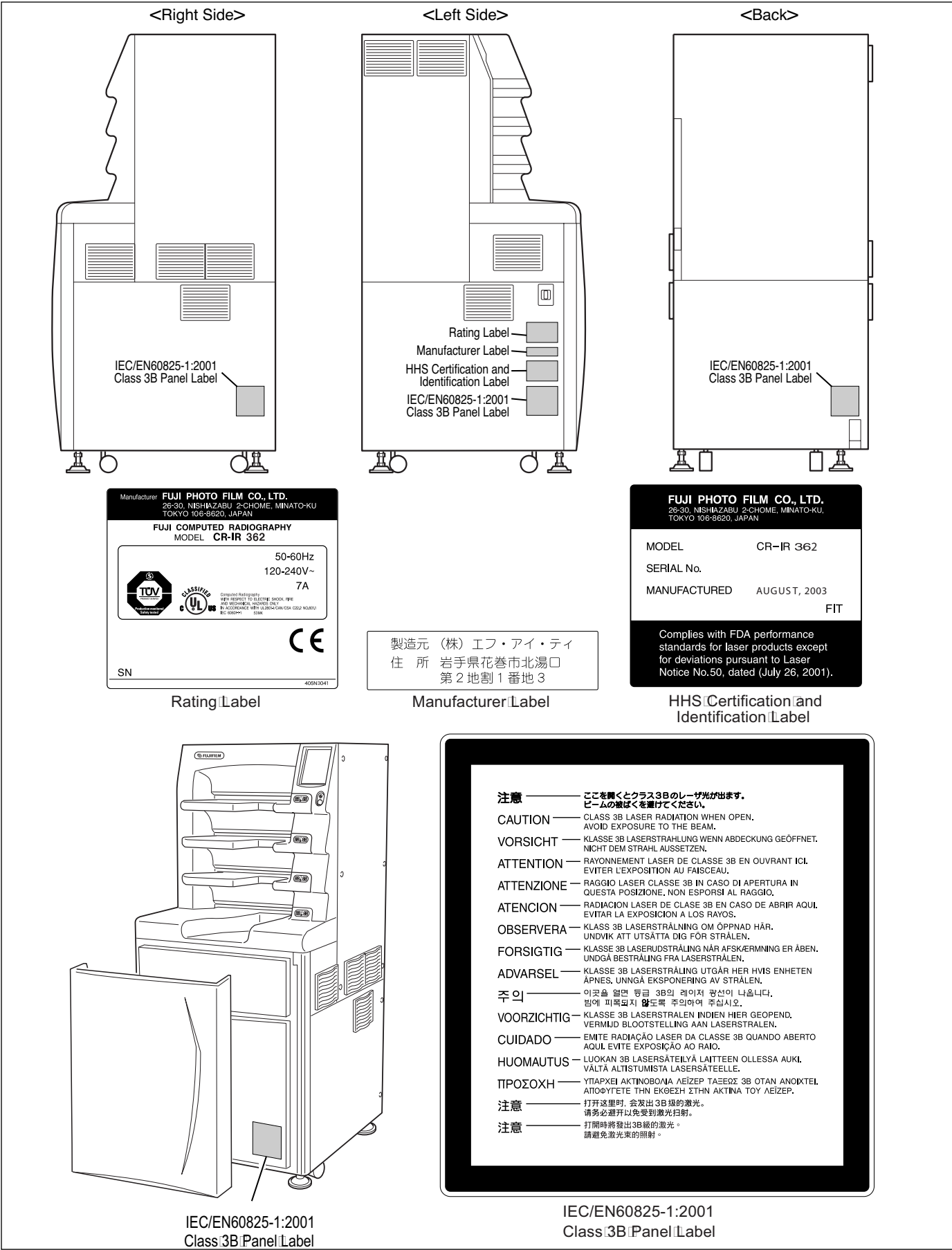
²⁾ High Resolution

³⁾ High Resolution Basetransparent Detect, CosimaX only (double-sided reading)

Labels (PCR CosimaX)



Labels (PCR Corado)



7 Preview Console (Rel. 1.2 L1)

7.1 What is the Preview Console?

The Preview console is a user interface terminal for the initial viewing and quality control of the X-ray images read. The console comprises the Preview PC, a screen (or touch screen) as well as a keyboard and mouse if necessary. The Preview console is assigned to a specific image plate reader and controls the transmission of the images read to the Easy Vision RAD. If required simple image editing can be carried out.

In the PCR system the Preview console works in conjunction with one of the image plate readers which is described in the next chapter.

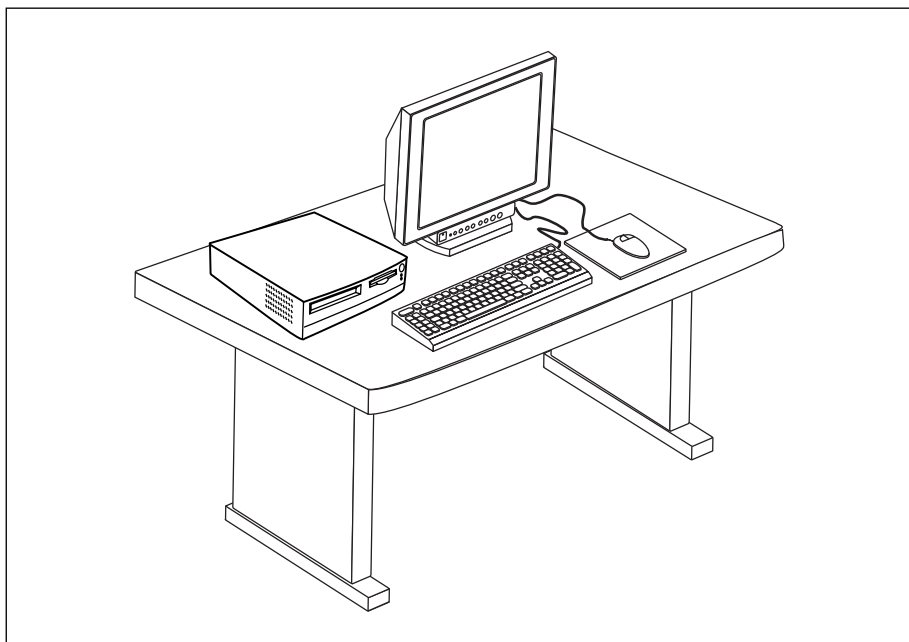


Fig. 7.1 Preview console

7.2 Main Window

The following figure shows the main window which appears on the screen of the Preview console after starting the program. It is the central window for the basic functions and displays and also the starting point for selecting other functions.

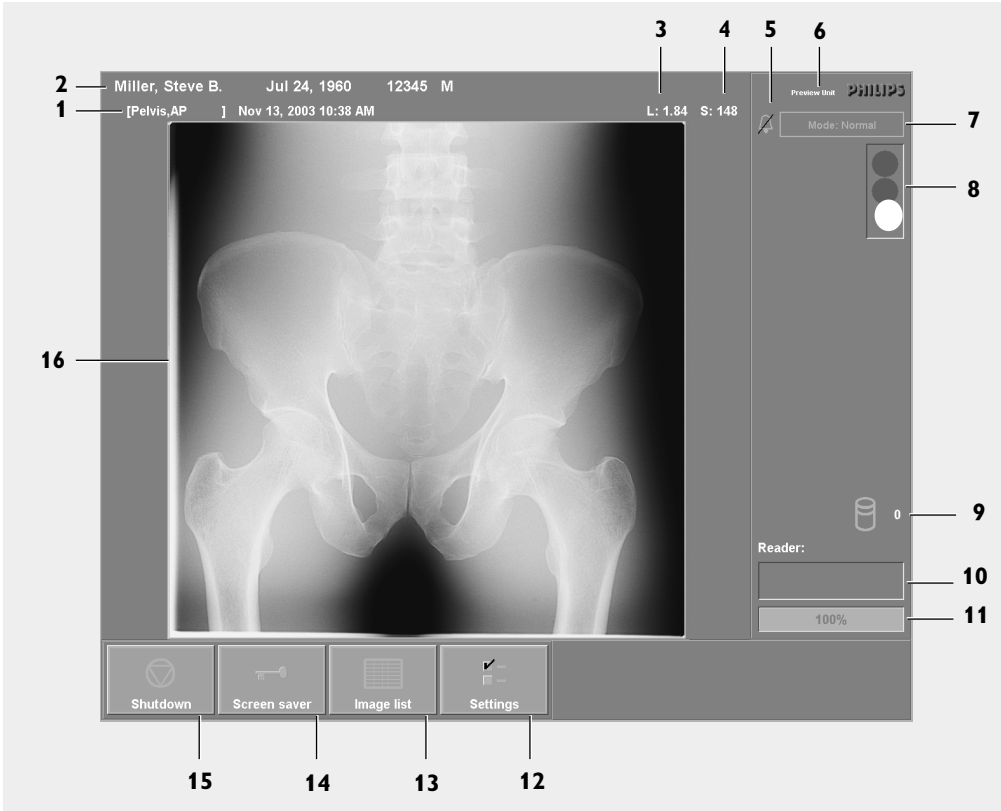


Fig. 7.2 Main window

Item	Explanation
1	Examination data Projection, examination; reading date and time; display if image rotated or a mirror-image.
2	Patient data Patient name; date of birth; patient number (ID); sex
3	Display of L-value The L-value (latitude) is an internal measurement for the width of the histogram determined and is comparable to the contrast control.
4	Display of S-value The S-value (sensitivity) is an internal measurement for sensitivity when interpreting grey shapes and is comparable to the brightness control.
5	Symbol for acoustic signal The symbol is crossed through if the acoustic signal is switched off.

Item	Explanation
6	Description of the components and software version If the mouse is moved over this description, the software version is displayed on the mouse pointer.
7	Display of operating mode Shows the operating mode selected: Normal, Confirmation or Edit (see page 170).
8	Traffic-lights status display Shows the current status of the plate reader in the three traffic-lights colours and the error category in the event of disruptions. Green: plate reader is ready for operation; proper connection to the other system components. Yellow: There is a minor disruption but operation can be continued. A message indicating the cause of the malfunction is displayed. For further information on this topic refer to the section „Handling of Error Messages“ on page 195. Red: There is a major disruption preventing further operation. A message indicating the cause of the malfunction is displayed. For further information on this topic refer to the section „Handling of Error Messages“ on page 195.
9	Queue display The number of images awaiting transmission to the EasyVision RAD is shown next to the hard disk symbol. A queue may form if there is a high throughput of images. The display is constantly updated. If "0" appears, all images read have been transmitted to the EasyVision RAD.
10	Status field Shows the current status of the plate reader.
11	Progress indicator Shows the current status of cassette processing in percentage increments.
12	"Settings" button Calls up a window for selecting various basic settings, e.g. Normal or Confirmation mode (see page 165).
13	"Image list" button Calls up a list with images in interim storage for postprocessing (see page 185).
14	"Screen saver" button Activates screen saver (see page 168).
15	"Shutdown" button Shuts down the application program.
16	Display area for images read

7.3 Basic Work Techniques

7.3.1 Switching on the Preview Console

For further information on this topic refer to the section „PCR System – Switch-on Sequence“ on page 27.

- 1 Switch on the Preview PC with the power-on switch (also see the Instructions for Use for the PC).

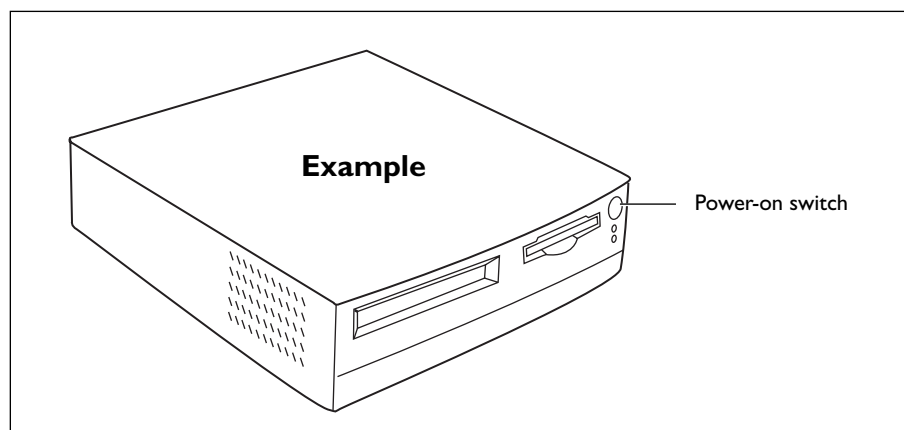


Fig. 7.3 Preview PC

If the password protection has been activated by Philips Customer Service or your system administrator, you must enter the correct password to continue the start process.

The application program starts automatically. The main window below appears when the start process has been completed.

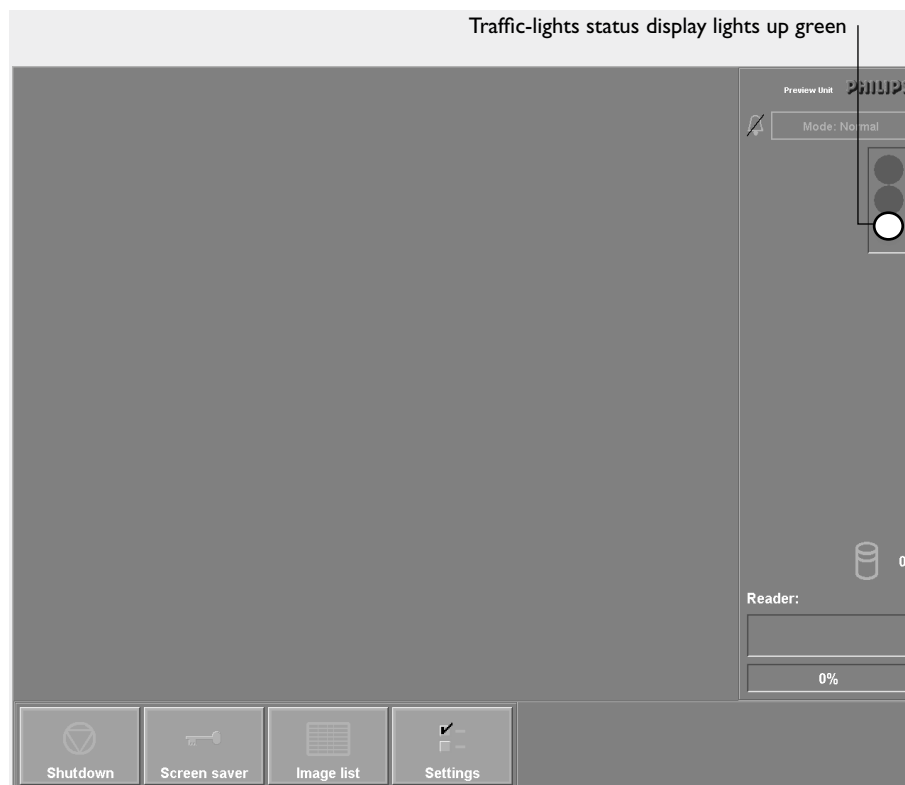


Fig. 7.4 Main window

The Preview console indicates that it is ready for operation by displaying the main window and the green traffic-lights status display.

For the green light to appear the plate reader and the PCR terminal must be switched on. For image transmission, the EasyVision RAD workstation must also be ready for operation (see Instructions for Use for the EasyVision RAD).

Further procedure depends on the operating mode selected. Further details can be found under „Working in Normal Mode“ on page 170 and under „Working in Confirmation Mode“ on page 176.

7.3.2 Switching off the Preview Console

For further information on this topic refer to the section „PCR System – Switch-off Sequence“ on page 27.

- 1 Touch or click on the "Shutdown" button in the main window.
 - The application program and Windows are shut down.

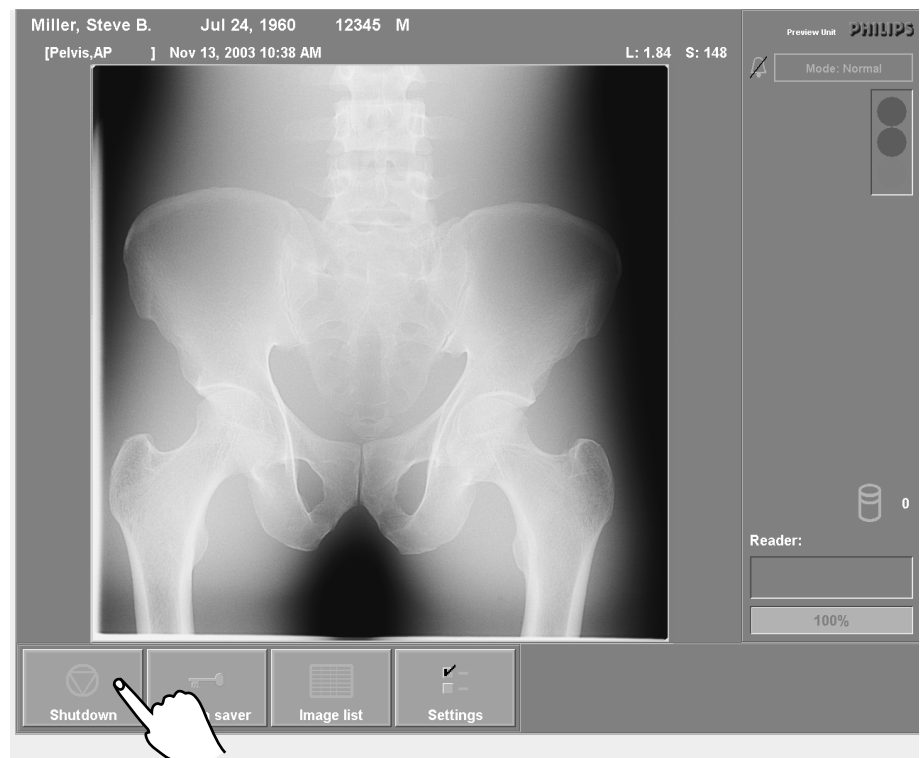


Fig. 7.5 "Shutdown" button in main window

The Preview PC and the plate reader switch off automatically.

- 2 If necessary, switch off the other hardware components of the Preview console (screen).

If a cassette is still being processed in the plate reader, a message is shown on the screen of the Preview console. Acknowledge the error message and then repeat the process.

7.3.3 Making Basic Settings

A number of basic settings can be made for operation of the Preview console under "Settings" in the main window.

- 1 Touch or click on the "Settings" button in the main window.

NOTE *In Confirmation mode the relevant main window appears after uploading the image to the EasyVision RAD.*

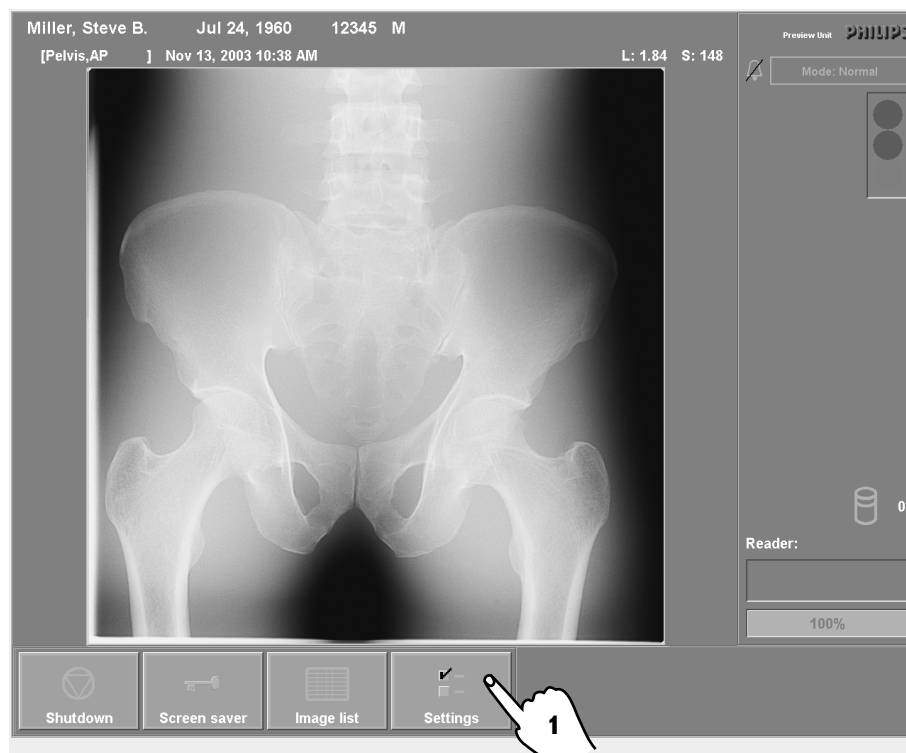


Fig. 7.6 "Settings" button in the main window

- The following window appears

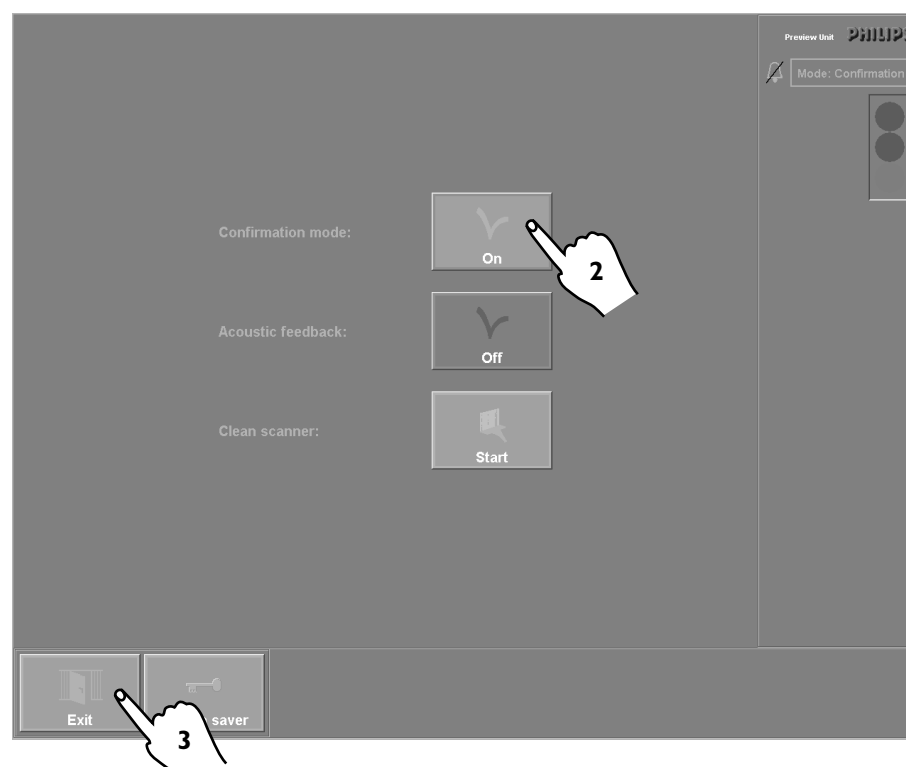


Fig. 7.7 Settings window

- 2 Select the required settings.

- The Preview console activates these settings immediately.
- 3 Touch or click on the "Exit" button to return to the main window.

The settings selected have been saved and do not change even when the system is restarted.

Confirmation mode

The Preview console either operates in Confirmation or Normal mode. In Confirmation mode the images read are not transmitted to the EasyVision RAD until the user manually confirms the transmission of images on the Preview console. This setting provides for obligatory quality control of the images before they undergo further processing. If Confirmation mode is switched off, the Preview console operates in Normal mode. In Normal mode the images read are automatically transmitted to the EasyVision RAD without any intervention by the user being necessary. For this the PCR terminal has to be in Automatic mode. Further details can be found under „Working in Normal Mode“ on page 170 and „Working in Confirmation Mode“ on page 176.

Acoustic signal

You can activate a signal which sounds whenever operating instructions or error messages are displayed.

Cleaning the reader

Over time dust collects in the scanner of the plate reader. Cleaning should be carried out at regular intervals to remove the dust. This procedure takes around 15 seconds.

"Exit" button

To return to the previous window.

"Screen saver" button

Activates screen saver (see page 168).

7.4 Activating the Screen Saver

You can use the "Screen saver" button in all windows to activate the screen saver of the operating system. With the password protection for the screen saver the Preview console can be safeguarded from unauthorised use during intervals of non-use.

- 1 Touch or click on the "Screen saver" button in any window.
 - The screen saver will be activated.

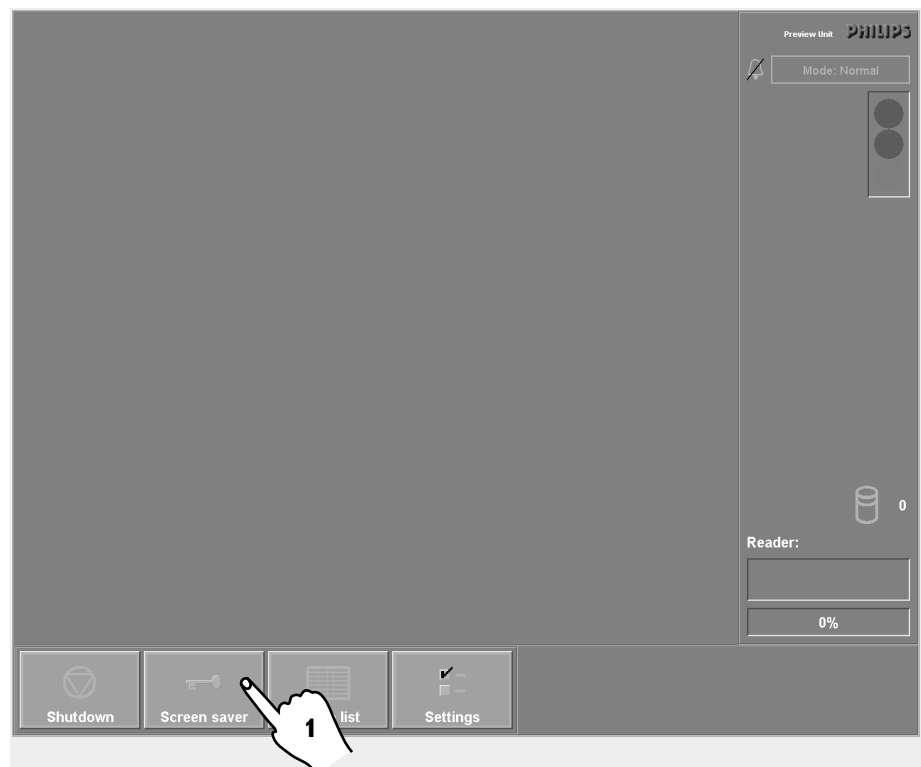


Fig. 7.8 "Screen saver" button in main window

The screen saver remains active until a key is pressed on the keyboard, the mouse is moved, the screen is touched (only with touch screen) or a new exposure is read.

For the configuration of your password protection please contact your system administrator. To continue working on the Preview console it is necessary to enter a password if the password protection is activated. This is the same password as for the system start. The password protection only becomes active when the screen saver is switched on for longer than approx. 10 seconds.

7.5 Handling of Operating Instructions

During operation, the screen of the Preview console displays various messages to help the user with operation of the system. These messages are shown in a special window which contains an information symbol. When a message is displayed, an acoustic signal sounds if the function 'Acoustic feedback' (see page 165) has been activated.

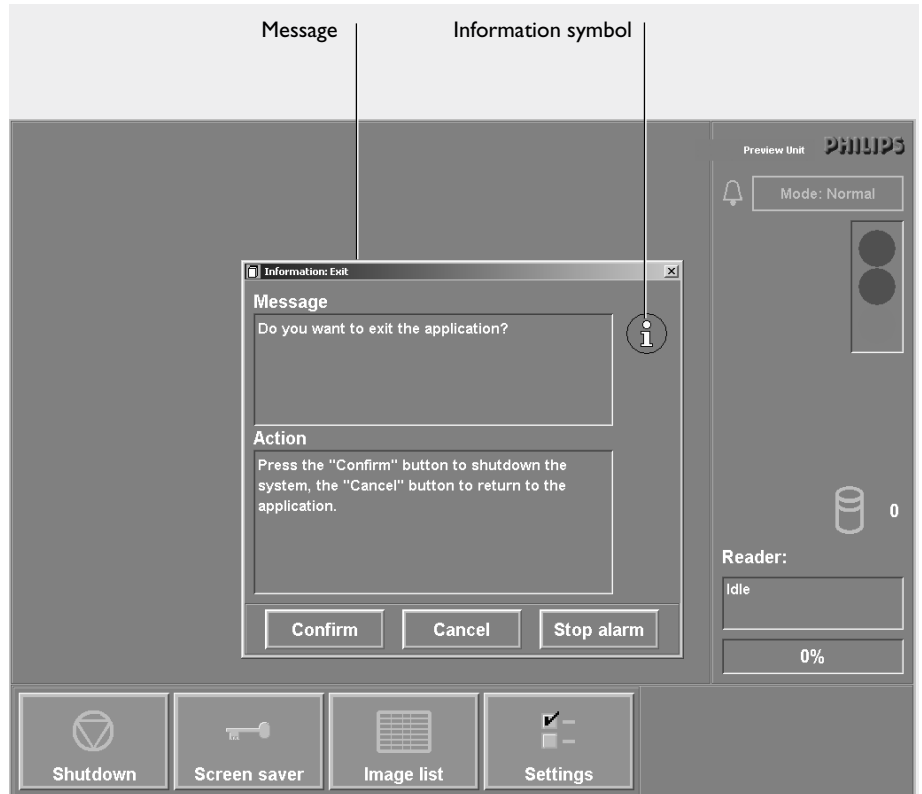


Fig. 7.9 Operating instruction when switching off system

The 'Message' field contains a description of the situation or a query. In the 'Action' field you will find the relevant operating instructions.

Handling of operating instructions

- 1 Click on or touch the "Stop alarm" button in the window to switch off the acoustic signal.
This button only appears when the function 'Acoustic feedback' (see page 165) has been activated.
- 2 Read through the information in the 'Message' and 'Action' fields carefully.
- 3 Select the action you require by pressing either the "Confirm" or "Cancel" button.

7.6 Working in Normal Mode

7.6.1 Basic Information on Normal Mode

The Preview console operates in Normal mode when Confirmation mode is switched off (see page 167). In routine operation, Normal mode only requires minimal intervention by the user. The images read are transmitted automatically to the EasyVision RAD so that no action is necessary at the Preview console. For this the PCR terminal has to be operating in Automatic mode. If, as an exception, you wish to check a single image before it is transmitted, you can select Manual mode at the PCR terminal (see page 171).

7.6.2 Procedure in Normal Mode

The procedure in Normal mode is described below. Further details on the entire procedure on the PCR system can be found on page 25.

- Step 1
- Step 2
- Step 3

Make exposure (see page 27)

Enter data at PCR terminal and scan barcode (see page 75)

Insert cassette into plate reader (see page 121 and 138)

A progress indicator appears on the screen of the Preview console and the read raw image is built up. If applicable, the individual processing phases are displayed in the status field above the progress indicator.



Fig. 7.10 Display during reading process

The reading process is complete when the complete processed image appears on the screen.

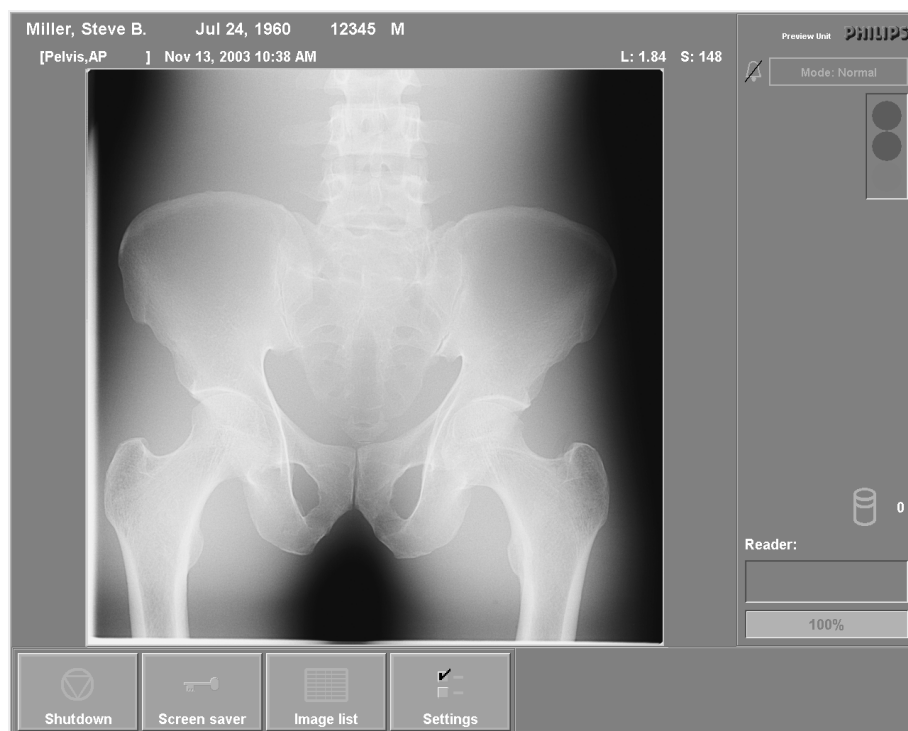


Fig. 7.11 Reading process complete

The image is now automatically transmitted to the EasyVision RAD.

Step 4

Remove cassette from the cassette compartment (see page 125 and 142)

Step 5

In exceptional cases postprocess image and resend (see page 182)

7.6.3

Checking Individual Images before Transmission

To check, for example, a single critical exposure before transmission, the transmission routine to EasyVision RAD can be interrupted. To do this, the "Manual" reader mode is selected before scanning the barcode on the PCR terminal (see page 85).

Checking individual images

- 1 Enter the patient and examination data in the PCR terminal as normal and select the function "Manual" under the "Reader mode" in the "Image options" window.

The screenshot shows the 'Image Options' window on a PCR terminal. The window is titled 'Image Options' and has a 'Manual' reader mode selected. It contains various input fields for patient and exam data, including Patient ID, Last Name, First Name, Middle Name, Date of Birth, Location, Exam Study/Accession Number, and Film Output. There are also checkboxes for 'OD Store' and 'Storage/Export', and a 'Messages' field. The bottom of the window shows a date and time stamp (02-02-1999 12:43 AM) and a 'Cancel' button.

Fig. 7.12 Image options window on the PCR terminal

- 2 Then scan the cassette barcode.
- 3 Insert the cassette into a free compartment on the plate reader.

The image is now read. After reading the image, the window for this exposure appears in Manual mode on the Preview console.

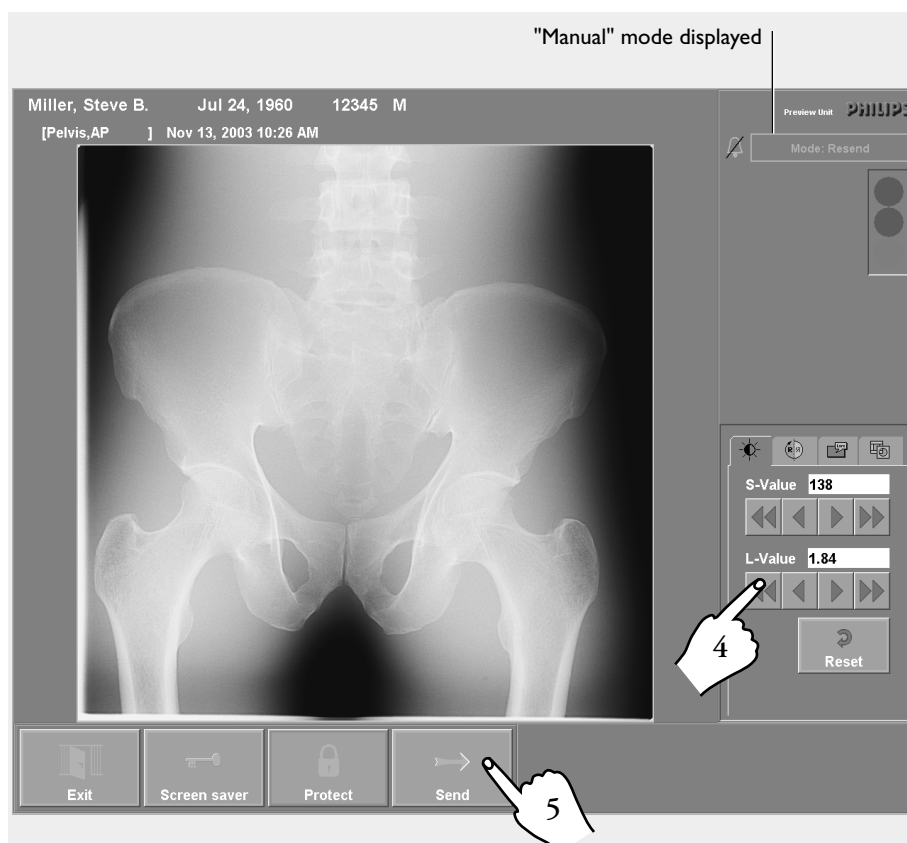


Fig. 7.13 Reading process complete

- 4 If necessary edit the image as required. For further information on this topic refer to the section „Image Editing Functions“ on page 189.
- 5 Then send the image to the EasyVision RAD by clicking on or touching the "Send" button.

The transmission of images can be rejected if this function has been configured accordingly by Philips Customer Service. For further information on this topic refer to the section „Rejecting Image Transmission“ on page 178.

The main window then appears in Normal mode.

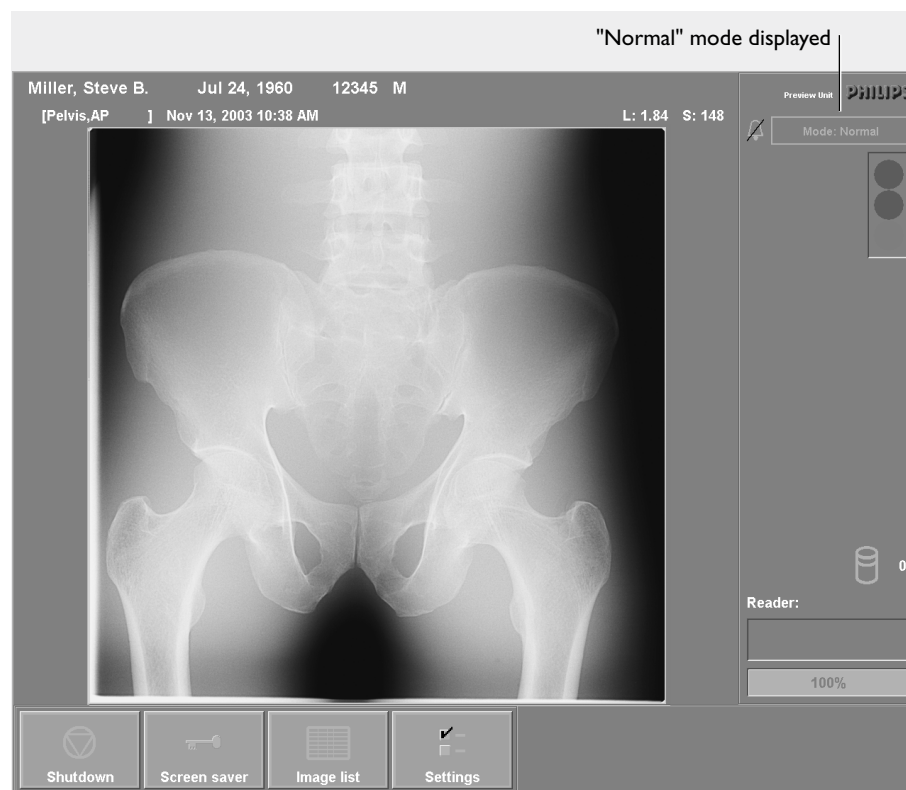


Fig. 7.14 Main window in Normal mode

The Preview console has switched back to Normal mode. The next images will be sent to the EasyVision RAD as normal without manual confirmation.

7.6.4

Window in Normal Mode

In Normal mode the main window is initially displayed in the basic state. The mode set is identified by the display "Normal". After the reading process is completed the window appears as shown below.

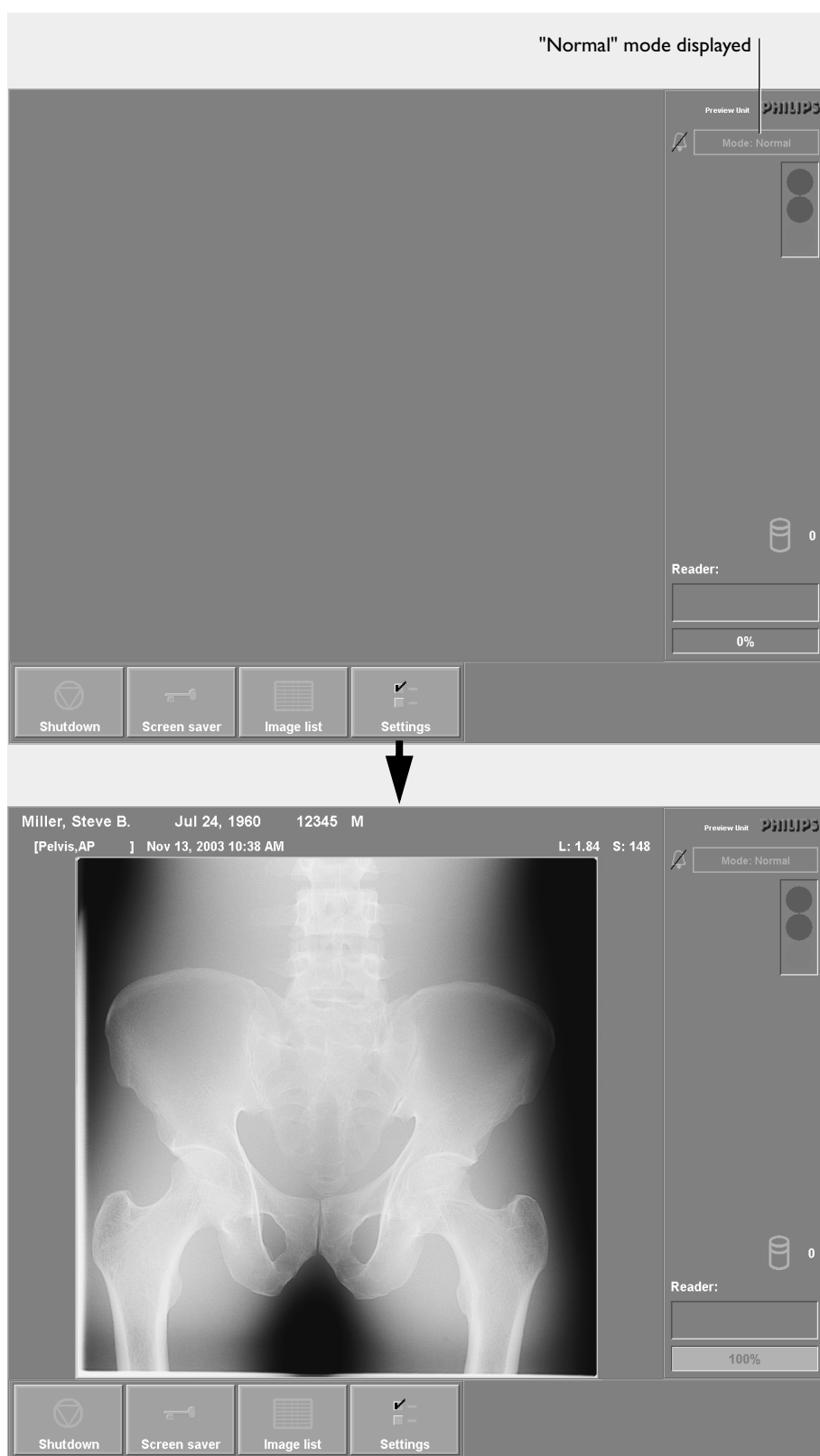


Fig. 7.15 Window in Normal mode

"Shutdown" button

Shuts down the application program (see page 165).

"Screen saver" button

Activates the screen saver (see page 168).

"Image list" button

Calls up a list of the images in interim storage on the hard disk of the Preview PC. They can be postprocessed and resent to the EasyVision RAD.

"Settings" button

For making basic settings (see page 165).

7.7 Working in Confirmation Mode

7.7.1 Basic Information on Confirmation Mode

In Confirmation mode the transmission of each image read requires manual confirmation by the user. Confirmation mode can be selected as the standard mode at the Preview console (see page 167). This provides for obligatory quality control of the images read and quick editing before they are transmitted to the EasyVision RAD. Confirmation mode overrides Automatic mode at the PCR terminal.

The transmission of imperfect images can be rejected if this function has been configured by Philips Customer Service (see page 178).

7.7.2Procedure in Confirmation Mode

The procedure in Confirmation mode is described below. Further details on the entire procedure on the PCR system can be found on page 25.

- Step 1
- Step 2
- Step 3

- Make exposure (see page 27)
- Enter data at PCR terminal and scan barcode (see page 75)
- Insert cassette into plate reader (see page 121 and 138)

A progress indicator appears on the screen of the Preview console and the read raw image is built up. If applicable, the individual processing phases are displayed in the status field above the progress indicator.



Fig. 7.16 Display during reading process

The reading process is complete when the complete processed image appears on the screen.

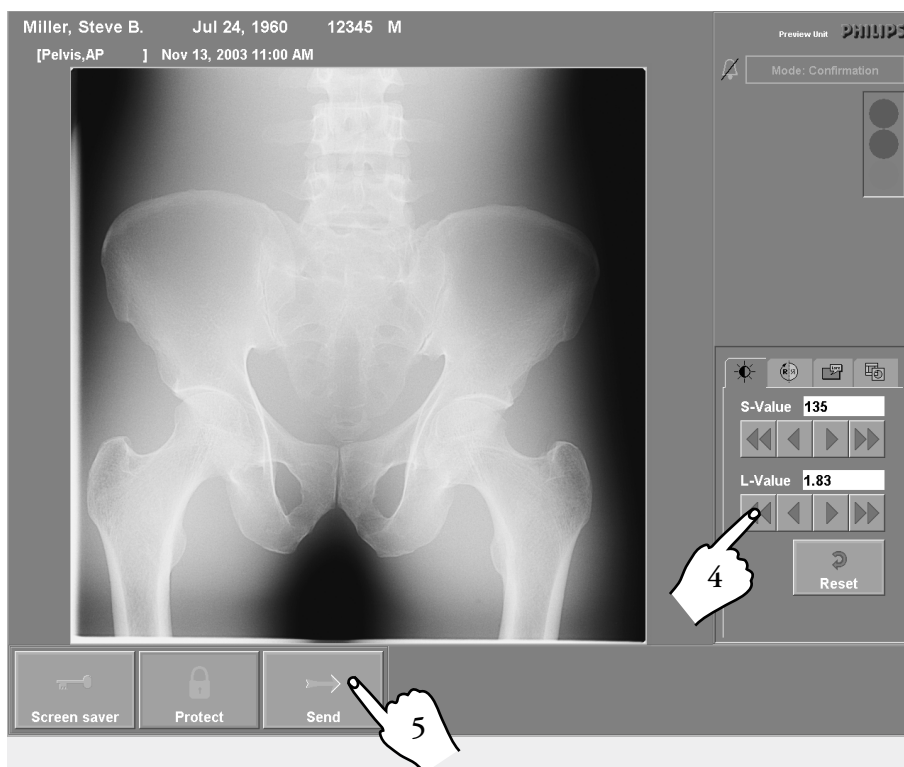


Fig. 7.17 Reading process complete

Step 4

If required edit image (see page 189)

Step 5

Send image to the EasyVision RAD by pressing the "Send" button

Step 6

Remove cassette from the cassette compartment (see page 125 and 142)

7.7.3

Rejecting Image Transmission

The transmission of images can be rejected if this function has been configured accordingly by Philips Customer Service. The rejected image is not exported to the EasyVision RAD, but remains in the interim storage on the hard disk of the Preview PC. Rejected images are marked with a corresponding attribute in the image list (see Fig. 7.26).

- 1 Touch or click on the "Reject" button in the main window in Confirmation mode.

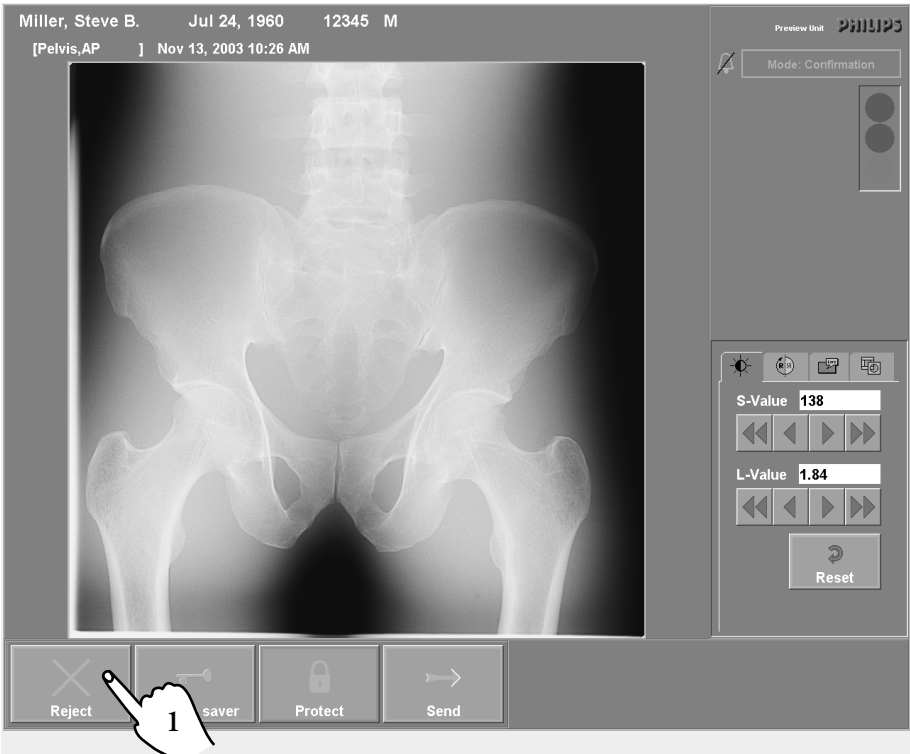


Fig. 7.18 Rejecting image transmission

- 2
- Confirm the request which appears.
 - The main window then reappears in the basic state.

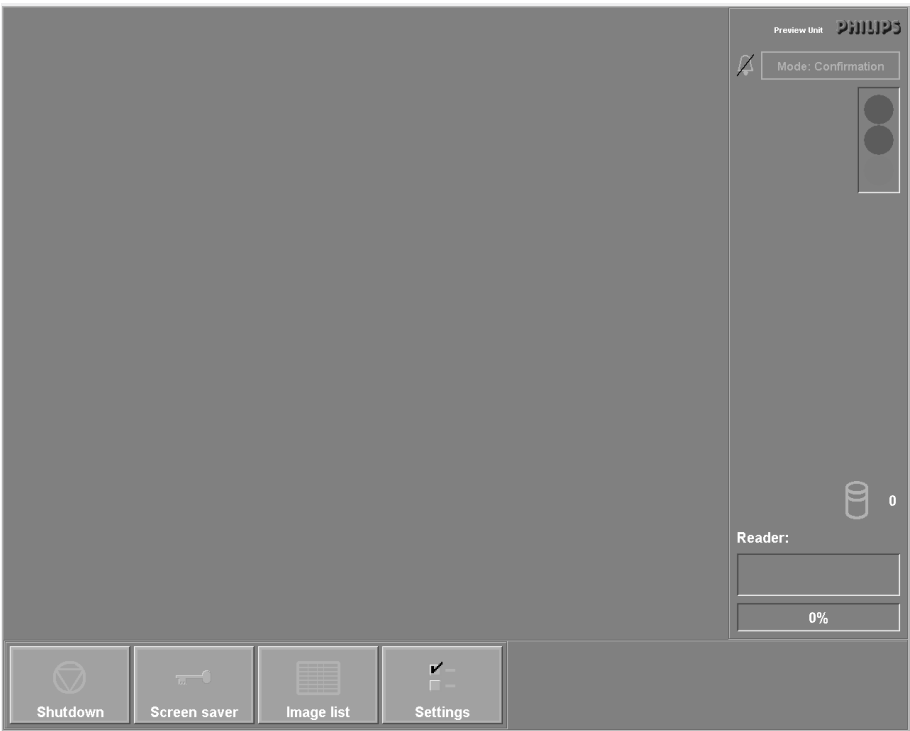


Fig. 7.19 Main window without an image

The rejected image remains in the interim storage and is subsequently erased by the automatic erasure mechanism from the hard disk of the Preview PC (see page 193).

7.7.4 Window in Confirmation Mode

In Confirmation mode the main window is initially in the basic state. The set mode is indicated by the display "Confirmation". After reading, the window shown below appears.

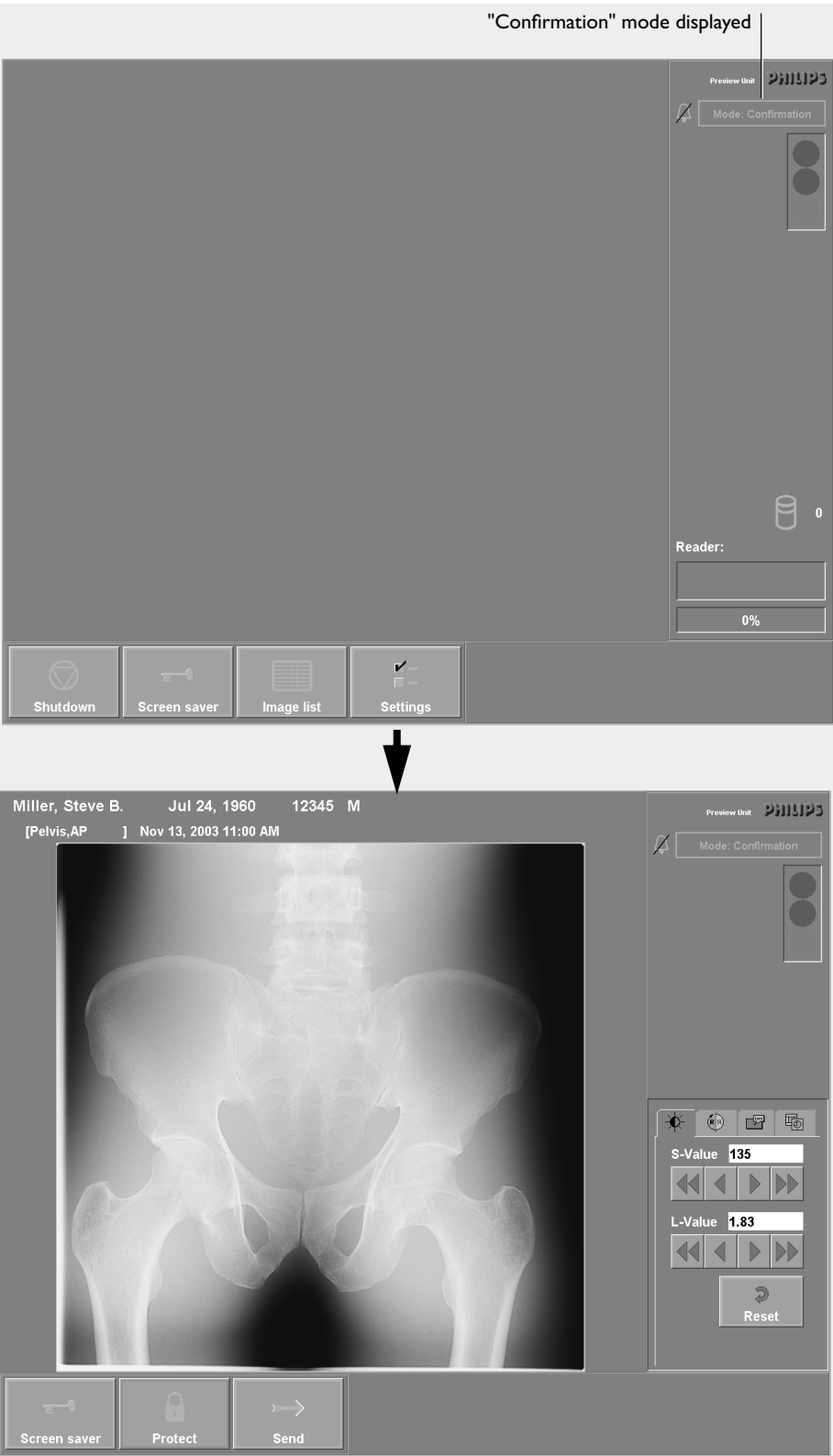


Fig. 7.20 Window in Confirmation mode

Window in basic state (without image)*"Shutdown" button*

Shuts down the application program (see page 165).

"Screen saver" button

Activates screen saver (see page 168).

"Image list" button

Calls up a list of all images in interim storage on the hard disk of the Preview PC. These images can be postprocessed and resent to the EasyVision RAD.

"Settings" button

For making basic settings (see page 165).

Window after reading is completed (with image)*"Screen saver" button*

Activates screen saver (see page 168).

"Protect" button

Protects the image from automatic erasure. The image remains in interim storage on the hard disk of the Preview PC until erasure protection is deactivated for this image.

NOTE

Images protected from automatic erasure take up space on the hard disk. There may be a shortage of capacity in routine operation if too many images are protected. Make sure you regularly remove the erasure protection if images are no longer needed.

"Send" button

Sends the current image to the EasyVision RAD.

"Reject" button (if configured by Philips Customer Service)

The image is not transmitted to the EasyVision RAD (see page 178).

"Editing functions"

(see page 189)

7.8 Editing Images

The Preview console provides certain functions for the editing of images which can be used quickly and simply on an image which has just been read or on an image in interim storage. After the image has been edited, send it (again) to the EasyVision RAD. The corresponding register with editing functions are, depending on the setting, available on the Preview console at various points during the procedure.

- NOTE
- *The editing functions shown below require software version release 1.5 L3. With older software versions errors may occur when using these editing functions.*
 - *Only manual changes to the S- and L- values are saved, other editing functions are not saved. Therefore if you wish to transmit an image from the interim storage to the EasyVision RAD for a second time, it is necessary to repeat any previous changes, for example, labels which have been positioned.*

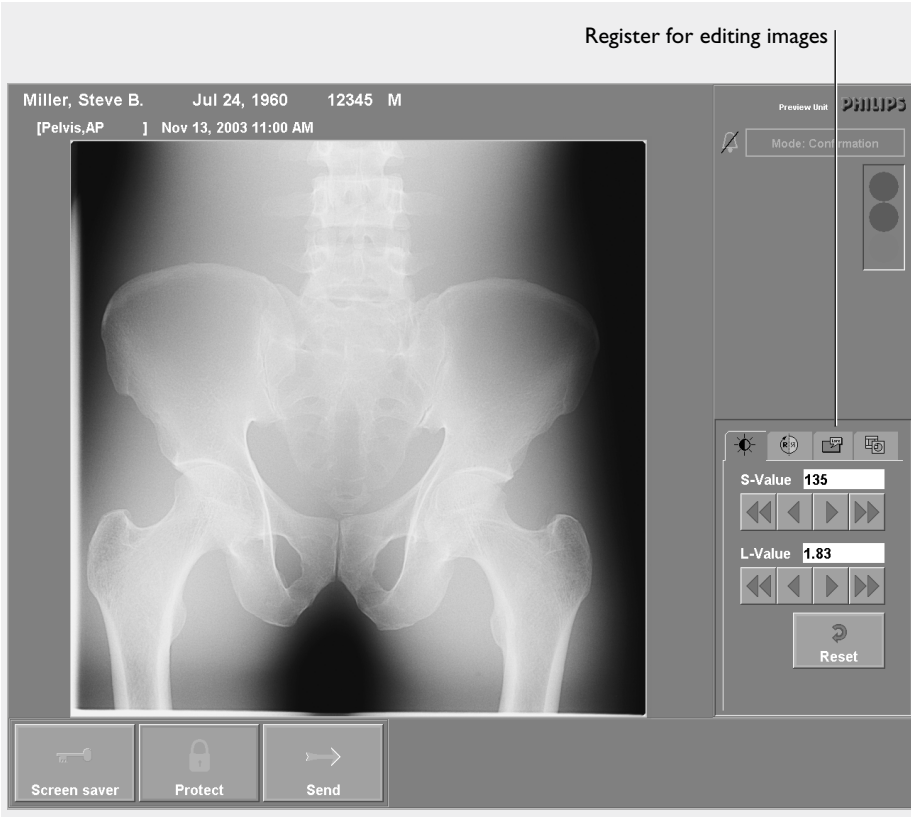


Fig. 7.21 Image editing functions



Set S- and L- values (see page 189)



Rotate or mirror images (see page 190)



Add labels (see page 191)

Create diaphragms (see page 192)

7.8.1 Procedure - Postprocessing and Retransmission

You can edit and subsequently resend images to the EasyVision RAD which have already been transmitted and which are still in interim storage on the Preview console. The second corrected image is saved in the same patient folder as the first image on the EasyVision RAD. The image is saved additionally and therefore does not overwrite the first image.

All images which are transmitted to the EasyVision RAD for a second time have the image number '0' on the EasyVision RAD computer.

Procedure - postprocessing and retransmission

- 1 Touch or click on the "Image list" button in the main window.

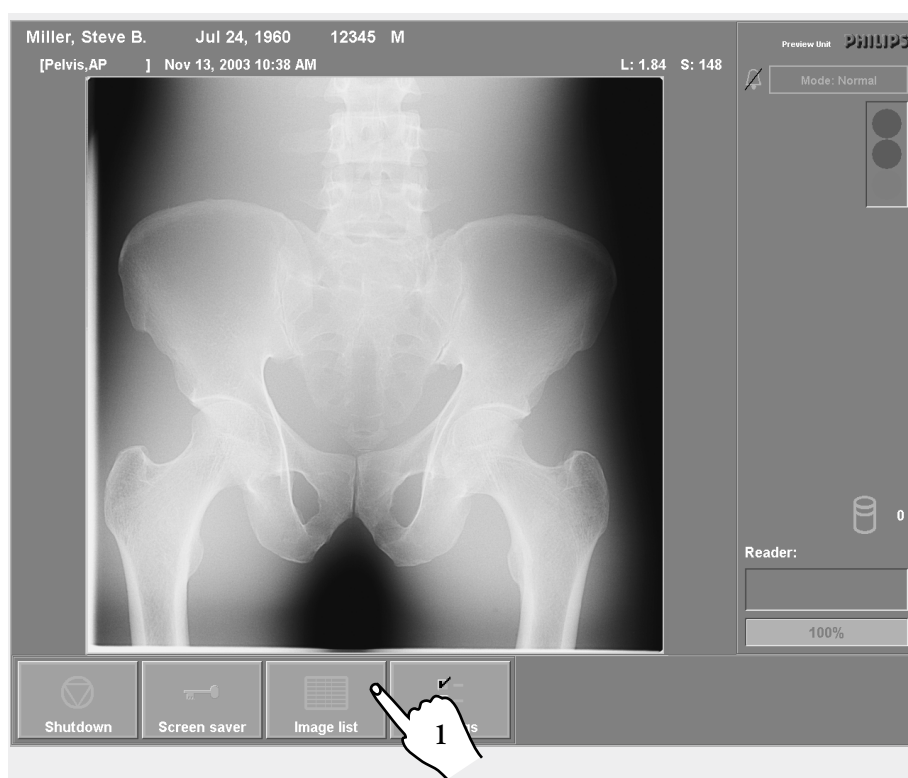


Fig. 7.22 Call up image list

The image list contains all images in interim storage which are still located on the hard disk of the Preview console.

2
Mark the required image in the image list

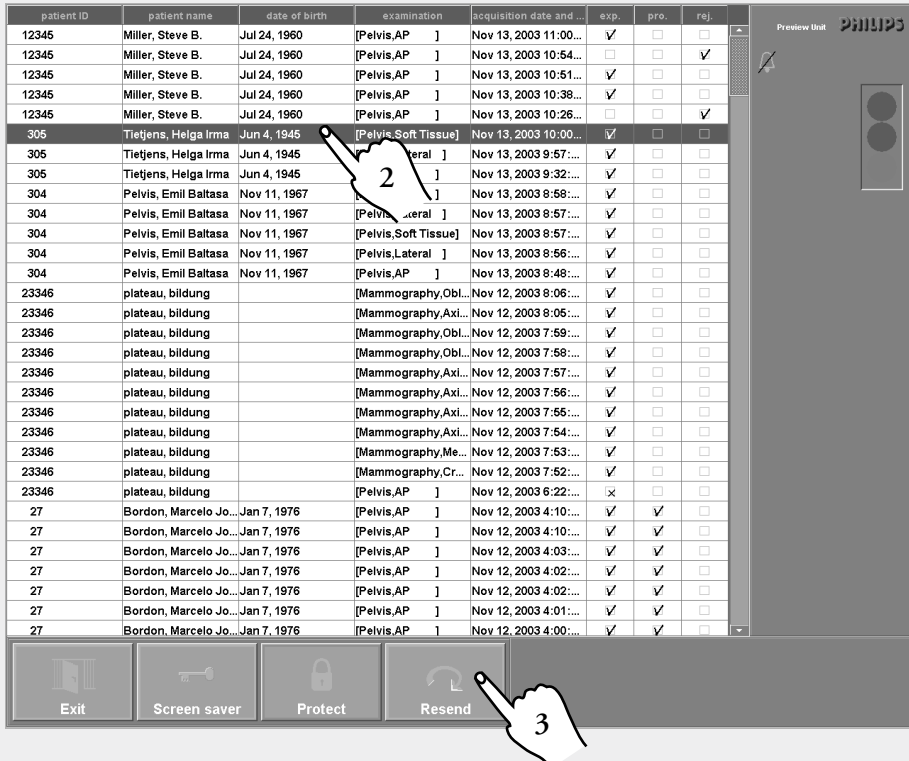


Fig. 7.23
Selection of an image for editing

- 3 Then touch or click on the "Edit" button.
- The following window appears.

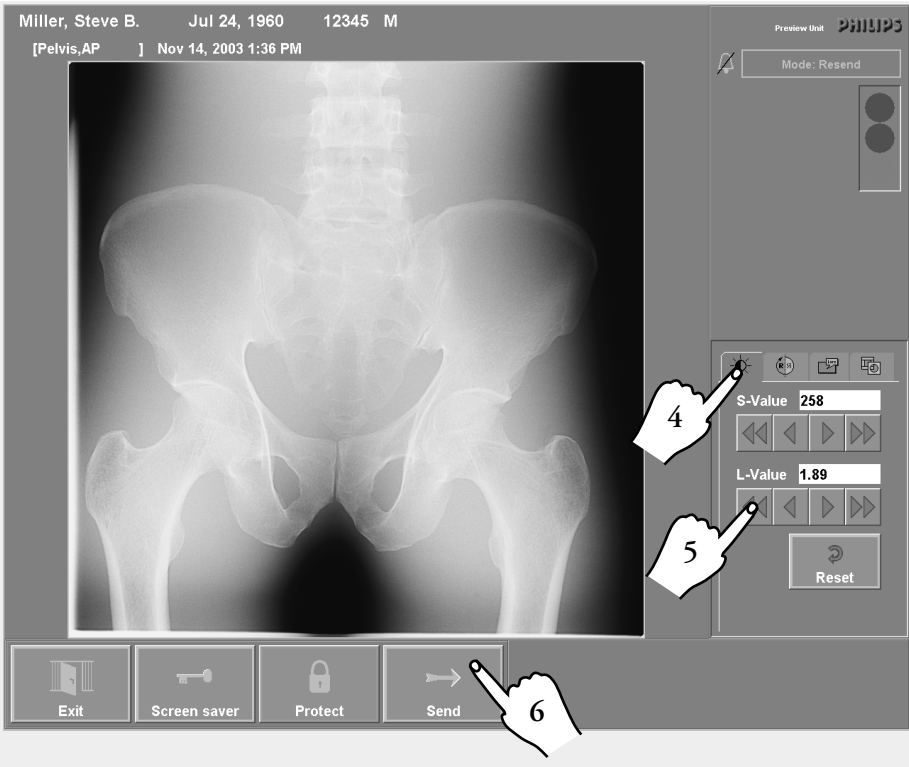


Fig. 7.24
Image editing window

- 4 Select the corresponding register for image editing.
- 5 Change, for example, the S- and L-values.

- 6 Touch or click on the "Send" button.

The image is now retransmitted to the EasyVision RAD. The image list (see Fig. 7.23) automatically appears on the Preview console. You can either select a new image for editing or return to the main window via the "Exit" button.

7.8.2

Working with the Image List

The image list contains all images which are currently in interim storage on the hard disk of the Preview PC. The list serves to call up images which are to be edited and retransmitted to the EasyVision RAD.

Calling up/exiting the image list

- 1 Touch or click on the "Image list" button in the main window (see Fig. 7.31).

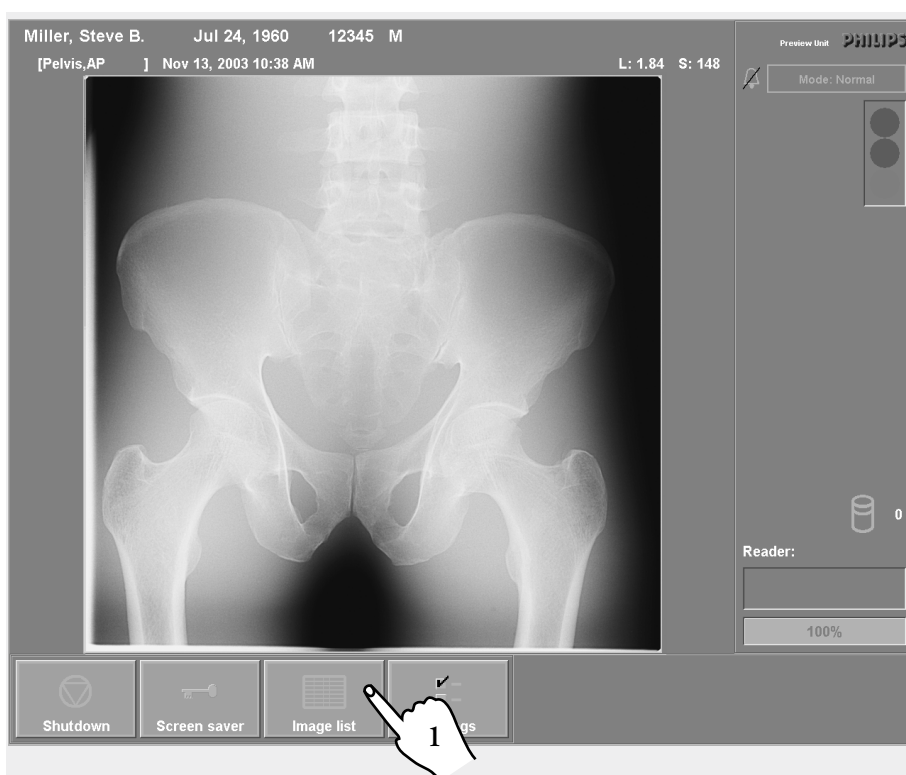


Fig. 7.25 Call up the image list

- The image list appears.

patient ID	patient name	date of birth	examination	acquisition date and ...	exp.	pro.	rej.
12345	Miller, Steve B.	Jul 24, 1960	[Pelvis,AP]	Nov 13, 2003 11:00...	✓	<input type="checkbox"/>	<input type="checkbox"/>
12345	Miller, Steve B.	Jul 24, 1960	[Pelvis,AP]	Nov 13, 2003 10:54...	<input type="checkbox"/>	<input type="checkbox"/>	✓
12345	Miller, Steve B.	Jul 24, 1960	[Pelvis,AP]	Nov 13, 2003 10:51...	✓	<input type="checkbox"/>	<input type="checkbox"/>
12345	Miller, Steve B.	Jul 24, 1960	[Pelvis,AP]	Nov 13, 2003 10:38...	✓	<input type="checkbox"/>	<input type="checkbox"/>
12345	Miller, Steve B.	Jul 24, 1960	[Pelvis,AP]	Nov 13, 2003 10:26...	<input type="checkbox"/>	<input type="checkbox"/>	✓
305	Tietjens, Helga Irma	Jun 4, 1945	[Pelvis,Soft Tissue]	Nov 13, 2003 10:00...	✓	<input type="checkbox"/>	<input type="checkbox"/>
305	Tietjens, Helga Irma	Jun 4, 1945	[Pelvis,Lateral]	Nov 13, 2003 9:57...	✓	<input type="checkbox"/>	<input type="checkbox"/>
305	Tietjens, Helga Irma	Jun 4, 1945	[Pelvis,AP]	Nov 13, 2003 9:32...	✓	<input type="checkbox"/>	<input type="checkbox"/>
304	Pelvis, Emil Baltasa	Nov 11, 1967	[Pelvis,AP]	Nov 13, 2003 8:58...	✓	<input type="checkbox"/>	<input type="checkbox"/>
304	Pelvis, Emil Baltasa	Nov 11, 1967	[Pelvis,Lateral]	Nov 13, 2003 8:57...	✓	<input type="checkbox"/>	<input type="checkbox"/>
304	Pelvis, Emil Baltasa	Nov 11, 1967	[Pelvis,Soft Tissue]	Nov 13, 2003 8:57...	✓	<input type="checkbox"/>	<input type="checkbox"/>
304	Pelvis, Emil Baltasa	Nov 11, 1967	[Pelvis,Lateral]	Nov 13, 2003 8:56...	✓	<input type="checkbox"/>	<input type="checkbox"/>
304	Pelvis, Emil Baltasa	Nov 11, 1967	[Pelvis,AP]	Nov 13, 2003 8:48...	✓	<input type="checkbox"/>	<input type="checkbox"/>
23346	plateau, bildung		[Mammography,Obl...	Nov 12, 2003 8:06...	✓	<input type="checkbox"/>	<input type="checkbox"/>
23346	plateau, bildung		[Mammography,Axi...	Nov 12, 2003 8:05...	✓	<input type="checkbox"/>	<input type="checkbox"/>
23346	plateau, bildung		[Mammography,Obl...	Nov 12, 2003 7:59...	✓	<input type="checkbox"/>	<input type="checkbox"/>
23346	plateau, bildung		[Mammography,Obl...	Nov 12, 2003 7:58...	✓	<input type="checkbox"/>	<input type="checkbox"/>
23346	plateau, bildung		[Mammography,Axi...	Nov 12, 2003 7:57...	✓	<input type="checkbox"/>	<input type="checkbox"/>
23346	plateau, bildung		[Mammography,Axi...	Nov 12, 2003 7:56...	✓	<input type="checkbox"/>	<input type="checkbox"/>
23346	plateau, bildung		[Mammography,Axi...	Nov 12, 2003 7:55...	✓	<input type="checkbox"/>	<input type="checkbox"/>
23346	plateau, bildung		[Mammography,Axi...	Nov 12, 2003 7:54...	✓	<input type="checkbox"/>	<input type="checkbox"/>
23346	plateau, bildung		[Mammography,Me...	Nov 12, 2003 7:53...	✓	<input type="checkbox"/>	<input type="checkbox"/>
23346	plateau, bildung		[Mammography,Cr...	Nov 12, 2003 7:52...	✓	<input type="checkbox"/>	<input type="checkbox"/>
23346	plateau, bildung		[Pelvis,AP]	Nov 12, 2003 6:22...	✗	<input type="checkbox"/>	<input type="checkbox"/>
27	Bordon, Marcelo Jo...	Jan 7, 1976	[Pelvis,AP]	Nov 12, 2003 4:10...	✓	✓	<input type="checkbox"/>
27	Bordon, Marcelo Jo...	Jan 7, 1976	[Pelvis,AP]	Nov 12, 2003 4:10...	✓	✓	<input type="checkbox"/>
27	Bordon, Marcelo Jo...	Jan 7, 1976	[Pelvis,AP]	Nov 12, 2003 4:03...	✓	✓	<input type="checkbox"/>
27	Bordon, Marcelo Jo...	Jan 7, 1976	[Pelvis,AP]	Nov 12, 2003 4:02...	✓	✓	<input type="checkbox"/>
27	Bordon, Marcelo Jo...	Jan 7, 1976	[Pelvis,AP]	Nov 12, 2003 4:02...	✓	✓	<input type="checkbox"/>
27	Bordon, Marcelo Jo...	Jan 7, 1976	[Pelvis,AP]	Nov 12, 2003 4:01...	✓	✓	<input type="checkbox"/>
27	Bordon, Marcelo Jo...	Jan 7, 1976	[Pelvis,AP]	Nov 12, 2003 4:00...	✓	✓	<input type="checkbox"/>

Fig. 7.26 Image list

- To return to the previous window touch or click on the "Exit" button.

Displays in the list

Column	Description
Patient ID to examination date	Display of patient and examination data
exp. (exported)	<p>✓ Indicates that transmission to the EasyVision RAD has been completed</p> <p>✗ Indicates that the image is in a queue for transmission to the EasyVision RAD. When these images are selected for postprocessing, a confirmation request appears because the images have not yet been transmitted.</p>
pro. (protected)	✓ Indicates that the image is protected from automatic erasure.
rej. (rejected)	✓ Indicates that transmission to the EasyVision RAD was rejected.

"Exit" button

Switches back to the main window.

"Screen saver" button

Activates the screen saver (see page 168).

"Protect" button

Activates/deactivates erasure protection (see page 194).

"Resend" button'

Opens the window for the postprocessing functions (see Fig. 7.27).

Selecting images

The most recent image appears at the top of the image list as standard. Images can only be marked individually.

- 1 Touch or click on the required image in the image list.

patient ID	patient name	date of birth	examination	acquisition date and ...	exp.	pro.	rej.
12345	Miller, Steve B.	Jul 24, 1960	[Pelvis,AP]	Nov 13, 2003 11:00...	✓	<input type="checkbox"/>	<input type="checkbox"/>
12345	Miller, Steve B.	Jul 24, 1960	[Pelvis,AP]	Nov 13, 2003 10:54...	<input type="checkbox"/>	<input type="checkbox"/>	✓
12345	Miller, Steve B.	Jul 24, 1960	[Pelvis,AP]	Nov 13, 2003 10:51...	✓	<input type="checkbox"/>	<input type="checkbox"/>
12345	Miller, Steve B.	Jul 24, 1960	[Pelvis,AP]	Nov 13, 2003 10:38...	✓	<input type="checkbox"/>	<input type="checkbox"/>
12345	Miller, Steve B.	Jul 24, 1960	[Pelvis,AP]	Nov 13, 2003 10:26...	<input type="checkbox"/>	<input type="checkbox"/>	✓
305	Tietjens, Helga Irma	Jun 4, 1945	[Pelvis,Soft Tissue]	Nov 13, 2003 10:00...	✓	<input type="checkbox"/>	<input type="checkbox"/>
305	Tietjens, Helga Irma	Jun 4, 1945	[Pelvis,Lateral]	Nov 13, 2003 9:57:...	✓	<input type="checkbox"/>	<input type="checkbox"/>
305	Tietjens, Helga Irma	Jun 4, 1945	[Pelvis,Soft Tissue]	Nov 13, 2003 9:32:...	✓	<input type="checkbox"/>	<input type="checkbox"/>
304	Pelvis, Emil Baltasa	Nov 11, 1967	[Pelvis,Lateral]	Nov 13, 2003 8:58:...	✓	<input type="checkbox"/>	<input type="checkbox"/>
304	Pelvis, Emil Baltasa	Nov 11, 1967	[Pelvis,Lateral]	Nov 13, 2003 8:57:...	✓	<input type="checkbox"/>	<input type="checkbox"/>
304	Pelvis, Emil Baltasa	Nov 11, 1967	[Pelvis,Soft Tissue]	Nov 13, 2003 8:57:...	✓	<input type="checkbox"/>	<input type="checkbox"/>
304	Pelvis, Emil Baltasa	Nov 11, 1967	[Pelvis,Lateral]	Nov 13, 2003 8:56:...	✓	<input type="checkbox"/>	<input type="checkbox"/>
304	Pelvis, Emil Baltasa	Nov 11, 1967	[Pelvis,AP]	Nov 13, 2003 8:48:...	✓	<input type="checkbox"/>	<input type="checkbox"/>
23346	plateau, bilduna		[Mammography,Obli...	Nov 12, 2003 8:06:...	✓	<input type="checkbox"/>	<input type="checkbox"/>

The current selection is highlighted.

Processing the image list

The images contained in the list are sorted in chronological order as standard. This means that the oldest image is right at the top and the most recent right at the bottom of the list. It is possible to change this organisation as well as the column width and sequence.

- 1 To adjust the column width click on a vertical border line of a column. The mouse pointer turns into a double arrow. Drag the column to the required size.

patient ID	patient name	date of birth	examination	acquisition date...	exp.	pro.	rej.
879699	Gordon, C.F. ...	Mar 24, 1987	[Hand,Oblique...	Oct 1, 2001 12:...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
879699	Gordon, C.F. ...	Mar 24, 1987	[Hand,Oblique...	Oct 1, 2001 12:...	✓	<input type="checkbox"/>	<input type="checkbox"/>
879699	Gordon, C.F. ...	Mar 24, 1987	[Hand,PA]	Oct 1, 2001 12:...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2001_HPZ	Mann, Charles...	Jul 8, 1974	[Hand,Lateral ...	Oct 1, 2001 12:...	✓	<input type="checkbox"/>	<input type="checkbox"/>

- 2 To change the order of the columns click on the title line of a column and drag the entire column to the required location.

patient ID	patient name	date of birth	examination	acquisition date...	exp.	pro.	rej.
879699	Gordon, C.F. ...	Mar 24, 1987	[Hand,Oblique...	Oct 1, 2001 12:...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
879699	Gordon, C.F. ...	Mar 24, 1987	[Hand,Oblique...	Oct 1, 2001 12:...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
879699	Gordon, C.F. ...	Mar 24, 1987	[Hand,PA]	Oct 1, 2001 12:...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2001_HPZ	Mann, Charles...	Jul 8, 1974	[Hand,Lateral ...	Oct 1, 2001 12:...	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- 3 To change the order of the image list double-click on the title line of a column.

Column	Organisation of image list
Patient (ID)	Alphabetical order
Patient name	Alphabetical order
Date of birth	Chronological order
Examination	Alphabetical order
Date of examination	Chronological order

7.8.3 Image Editing Functions

In the following section all the image editing functions which are provided by the Preview console are described.

Editing the S- and L-values

- 1 Touch or click on the register tab for the S- and L-values and change the settings as required.

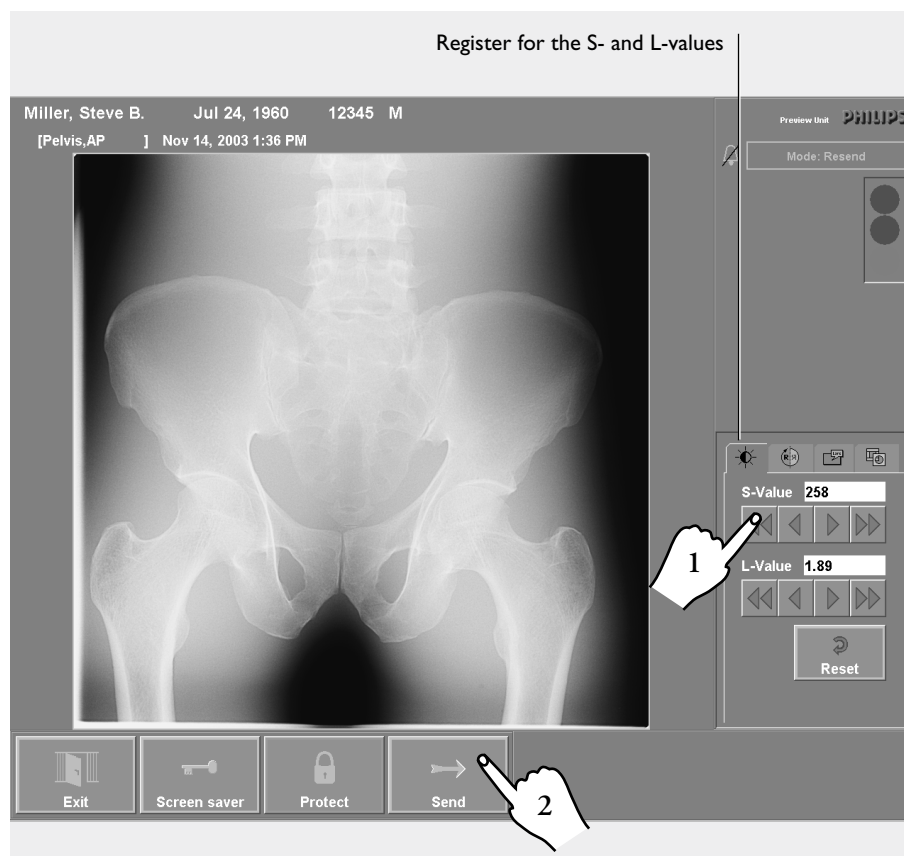


Fig. 7.27 Editing the S- and L-values

- 2 To now send the image to the EasyVision RAD touch or click on the "Send" button.

S-value

The S-value (sensitivity) is a measurement for sensitivity when interpreting grey shapes and is comparable to a **change in the brightness level**. When the adjustment limit has been reached, the relevant button is highlighted in grey.



Increase / reduce value in small steps



Increase / reduce value in large steps

L-value

The L-value (latitude) is a measurement for the width of the histogram determined and is comparable to a change in the **contrast level**. When the adjustment limit has been reached, the relevant button is highlighted in grey.

"Reset" button

Resets the S- and L-values to the default settings for each examination.

Rotating images

- 1 Touch or click on the register tab for rotating/mirroring and select a function.

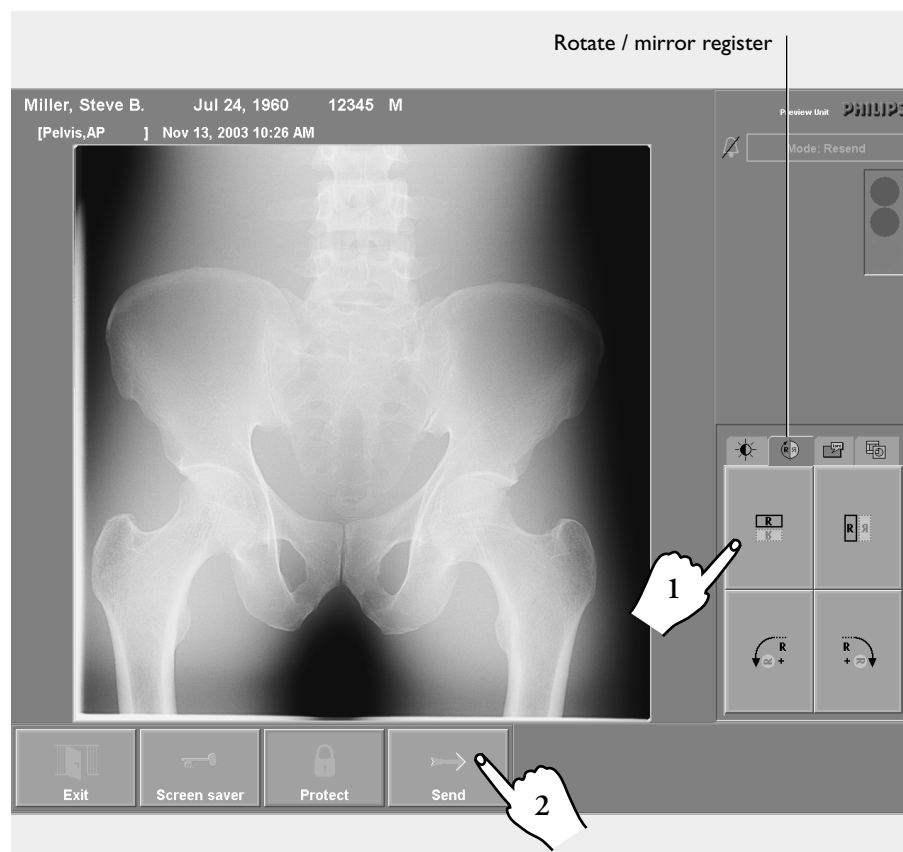


Fig. 7.28 Rotating and mirroring images

- 2 To now send the image to the EasyVision RAD touch or click on the "Send" button.

Mirror on the horizontal axis

Mirror on the vertical axis

Rotate 90° anticlockwise

Rotate 90° clockwise



Adding labels

You can add a label to indicate the orientation of the image.

NOTE

The selectable labels are configured by Philips Customer Service. Please notify Philips Customer Service if you wish to add new or delete old labels.

- 1 Touch or click on the register tab for labels and select a label.
- 2 Touch or click on the point where the label is to be positioned.

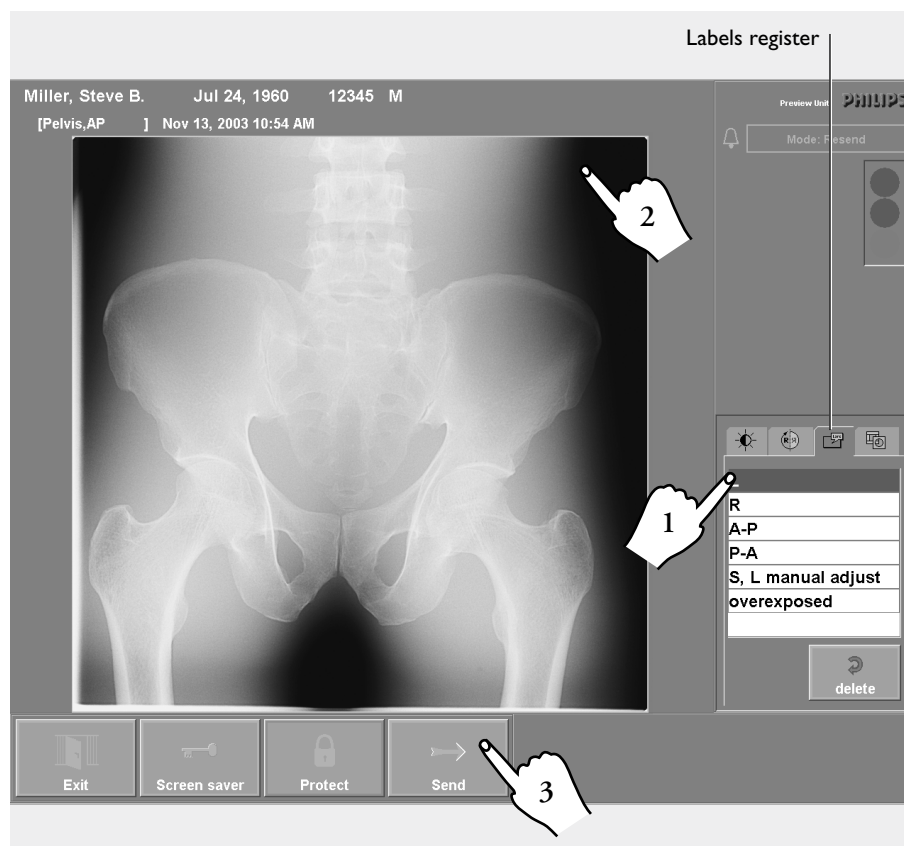


Fig. 7.29 Adding labels

- 3 To now send the image to the EasyVision RAD touch or click on the "Send" button.

All labels positioned to date are removed with the "Delete" button.

Creating diaphragms

NOTE *An automatic diaphragm control facility can be activated by Philips Customer Service. With this facility the corresponding images automatically feature a diaphragm. This diaphragm can be edited once the accompanying register has been opened.*

- 1 Touch or click on the register tab for diaphragms and select "On/Off".
- 2 Mouse: You can edit the size of the diaphragm by clicking on the editing points and dragging the diaphragm to the desired size.
Touch screen: You can edit the size of the diaphragm by touching an editing point and then touching the desired position of the diaphragm.

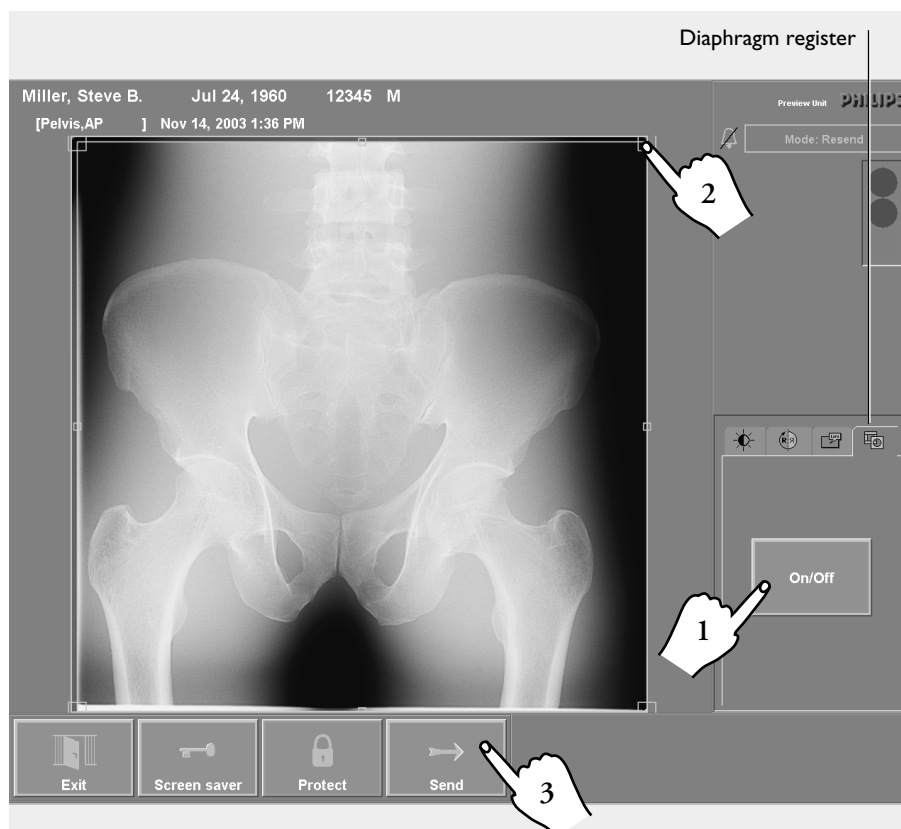


Fig. 7.30 Creating diaphragms

- 3 To now send the image to the EasyVision RAD touch or click on the "Send" button.

The On/Off switch can be used to reset the diaphragm to the automatically selected position. To do this simply switch off the diaphragm function once and then on again. The diaphragm is once again in its original position.

7.8.4

Image Management on the Preview Console**Basic information on image management**

The Preview PC is equipped with a hard disk which has a capacity for a maximum of 300 images for interim storage. If there is not more space for new images, an automatic erasure mechanism is activated. The oldest images are erased first. The following images are excluded from automatic erasure:

- Images with manual erasure protection
- Images which have not yet been transmitted to the EasyVision RAD (with the exception of rejected images).

The list of images in interim storage can be displayed by pressing the "Image list" button in the main window (see page 185). The images listed there have already been transmitted to the EasyVision RAD or are awaiting transmission because a queue for the EasyVision RAD has formed. The image list also includes images for which transmission was rejected.

The number of not yet transmitted images is displayed next to the hard disk symbol. If the image throughput is high, a queue may form for transmission to the EasyVision RAD.

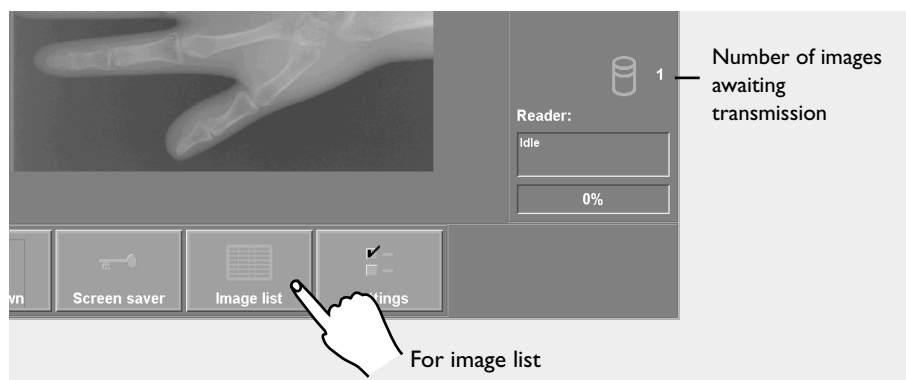


Fig. 7.31 Main window

All images in interim storage can be called up via the image list. They can be edited and subsequently retransmitted to the EasyVision RAD.

Activating/Deactivating Erasure Protection

You can activate or deactivate the erasure protection for individual images put into interim storage.

NOTE *Images protected from automatic erasure take up space on the hard disk of the Com-
pano Preview PC. There may be a shortage of capacity in routine operation if too
many images are protected. Make sure you regularly remove the erasure protection if
images are no longer needed.*

- 1 Select the required image and then touch or click on the "Protect" or "Unprotect" button.

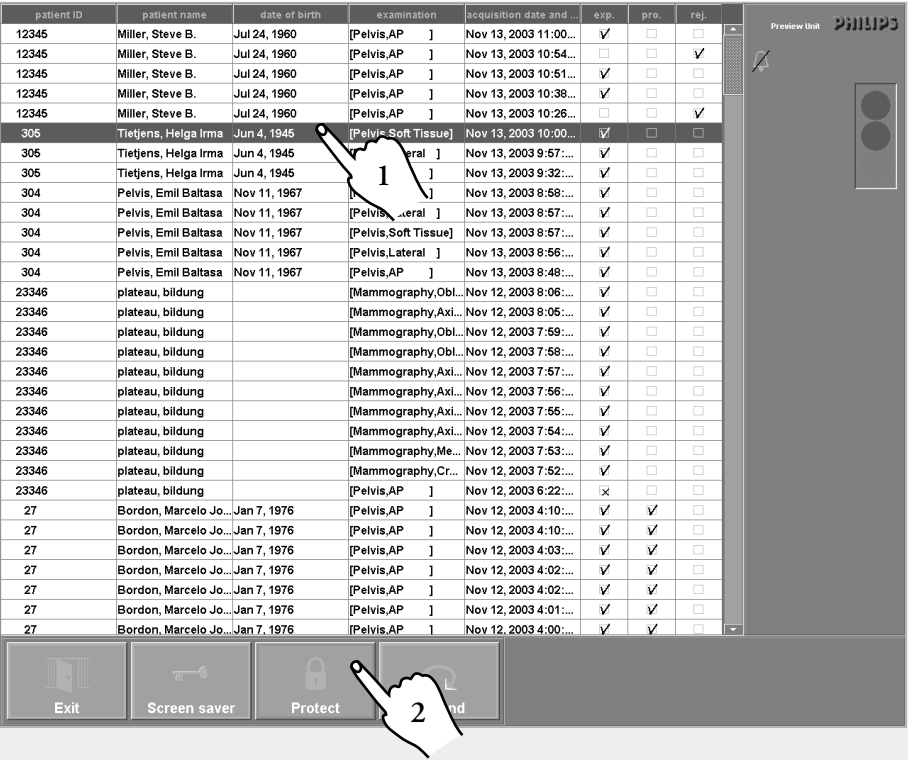


Fig. 7.32 Activating erasure protection

In the 'Protected' cell the current status is indicated by a check mark. The image remains stored on the hard disk until the erasure protection is removed manually.

7.9 Handling of Error Messages

Various error messages are displayed on the screen of the Preview console following malfunctions

- involving the connection to other system components
- during cassette and data processing
- during operation of the plate reader.

7.9.1 Basic Information on Error Messages

Error messages are displayed in a separate window and include a description of the error as well as instructions for dealing with it.

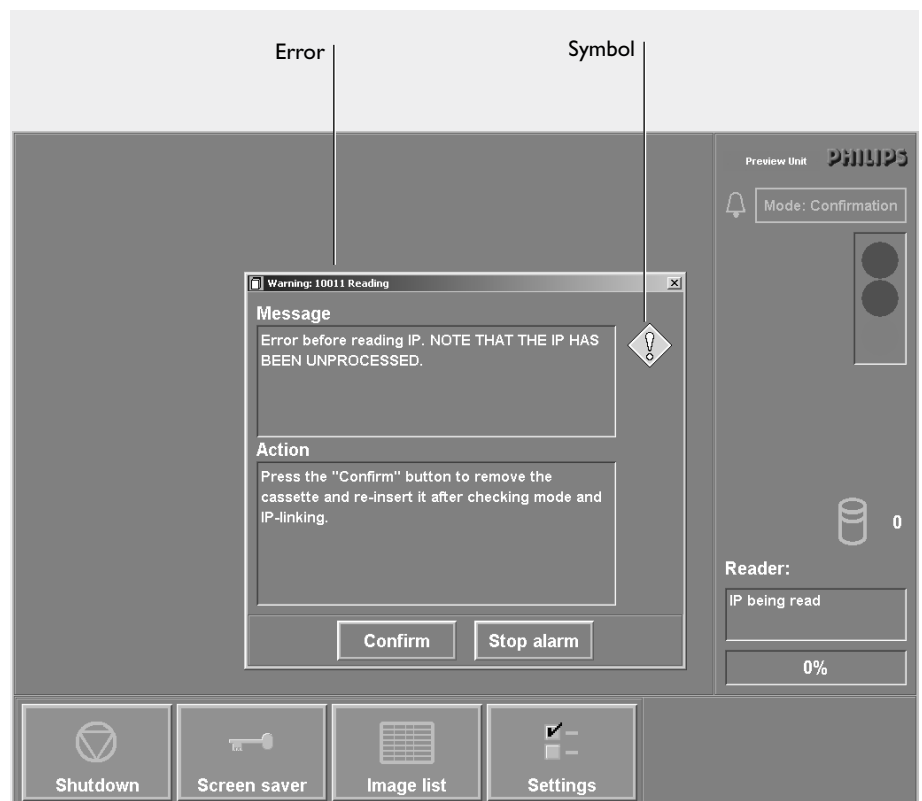


Fig. 7.33 Error message

The error messages occurring can be broken down into two categories:

Error messages due to malfunctions without impairment of operation

Error messages caused by minor malfunctions are displayed in the window with an exclamation mark symbol. This indicates a malfunction without or with only a slight impairment of operation. Operation of the PCR Compano system can generally continue without delay. If operation is impaired, the traffic-lights status display shows amber. After acknowledgement, the error message is shown next to the traffic-lights status display until the error is rectified.

Error messages due to malfunctions with impairment of operation

Error messages which lead to an interruption in operation are displayed in the window with a Stop symbol. This indicates that the error is holding up the reading process. The traffic-lights status display shows red. After acknowledgement, the error message is shown next to the traffic-lights status display until the error is rectified. Some malfunctions in this category cannot be rectified by the user. In this case please contact your system administrator or notify Philips Customer Service.

7.9.2 Procedure with Error Messages

- 1 Click or touch the "Stop alarm" button in the window to switch off the acoustic signal. This button is only displayed if the function "Acoustic feed-back" has been activated (see page 165). Read through the information in the fields 'Message' and 'Action' carefully.

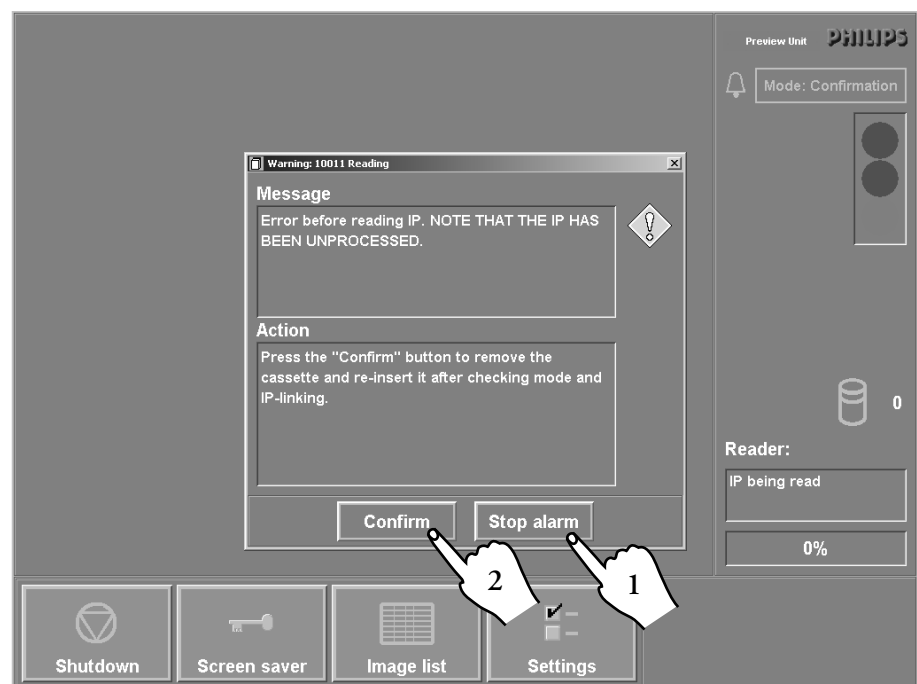


Fig. 7.34 Acknowledging error message

- 2 Acknowledge the error message by clicking on or touching 'Confirm'.
 - The window with the error message disappears. The description of the error now appears next to the traffic-lights status display as appropriate.
- 3 Rectify the error if possible or contact your system administrator or Philips Customer Service.

If the error has been rectified, the traffic-lights status display is extinguished and the green lamp lights up again. Normal operation can be continued.

7.9.3Examples of Various Error Messages

The following example shows an error message with the traffic-lights status display on amber. The error displayed is rectified by switching on the EasyVision RAD PC.

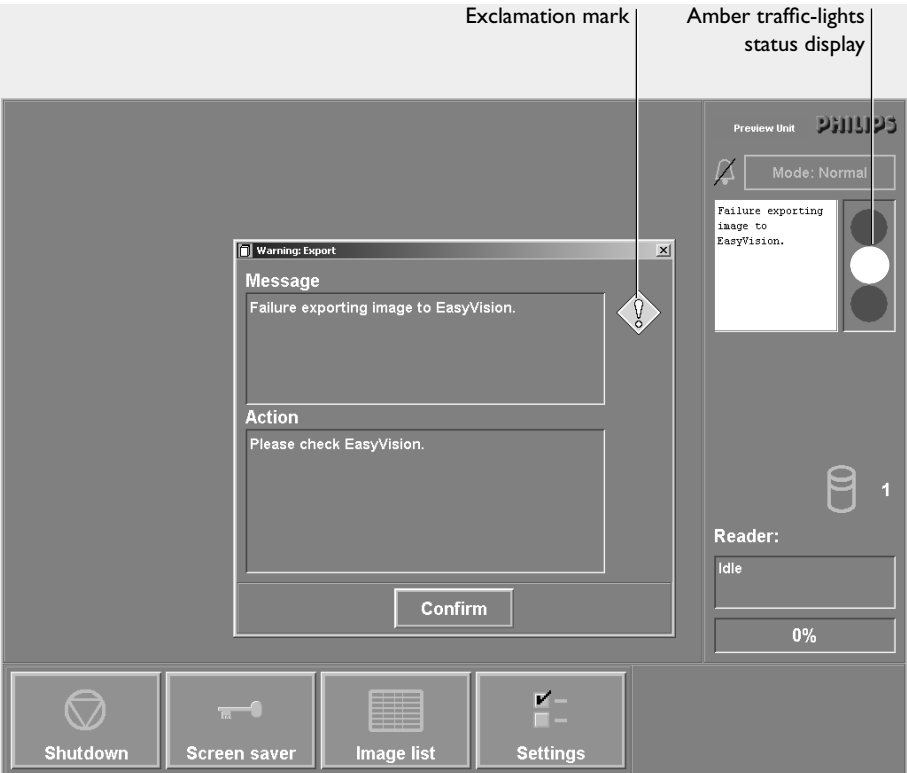


Fig. 7.35 Error message with amber traffic-lights status display

The following example shows an error message with the traffic-lights status display on red. The error displayed can possibly not be remedied by the user.

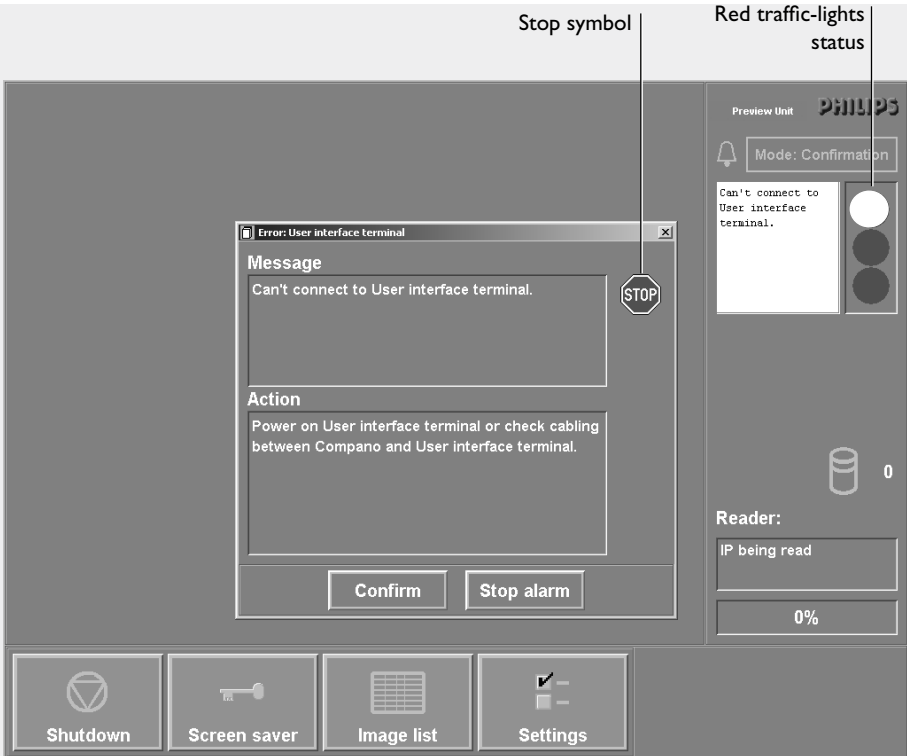


Fig. 7.36 Error message with red traffic-lights status display

7.10
Technical data

7.10.1
General data

Features	Specifications
Ambient conditions	
In operation	Temperature: + 15°C to + 30°C, Rel. humidity: 40% to 80%, no condensation
For storage and transport	Temperature: 0°C to + 45°C Rel. humidity: 10% to 90%, no condensation
Power supply	
Mains voltage	100 V to 120 V ±10% or 200 V to 240 V ±10%
Mains frequency	50 Hz/60 Hz
Nominal power	Preview console 0.2 kVA (200 W)

7.10.2
Labels

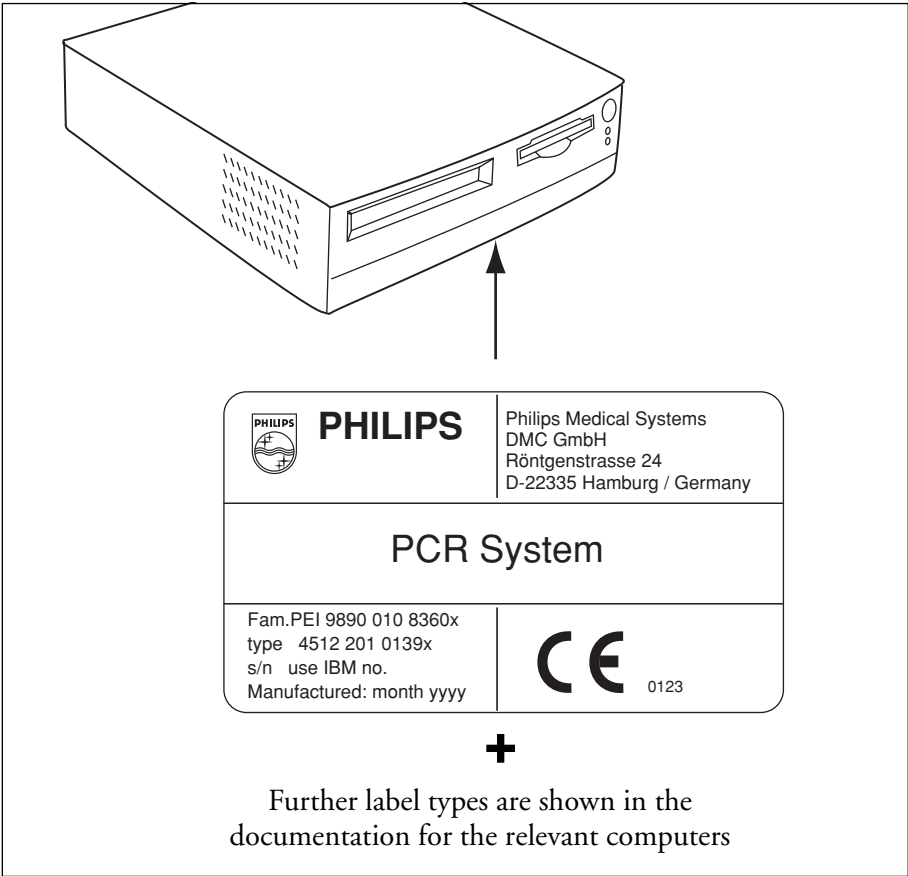


Fig. 7.37 Labels on the Compano Preview PC

Glossary

DICOM

Digital Imaging and Communication in Medicine. Medical equipment standard for data formatting and transfer.

DICOM Worklist Management

Special DICOM standard for administering worklists.

Image plate

Reusable plate, stored in a cassette, electrically stimulated by impacting X-rays. A digital image is produced when reading the image plate with the help of laser beams.

MRM code (menu code)

Identifies a parameter set for the reading process on the plate reader depending on the examination type carried out.

Obligatory fields

Input fields which must always be filled in, otherwise further progress is inhibited.

PCR

Philips Computed Radiography; name of the image plate system from Philips in the field of digital radiography.

RIS

Radiological Information System; central data entry and administration station for radiology.

S/L values

Manual adjustment on the image reader:

S = (sensitivity) value represents the sensitivity when reading the image plate (brightness).

L = (latitude) value represents the signal width when reading the image plate (contrast).

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Appendix

The following document "Appendix Y" shows a list of all the parameters which control the reading process of the image plate via the anatomical database. These sets of parameters, which are also referred to as menu codes or MRM codes, are assigned to the corresponding examination type in the database. The examination types are selected by the user on the PCR terminal according to the examination conducted.

In the following document you will find the menu codes, their meaning as well as information on the corresponding areas of application on the left-hand side. On the right-hand side of the document in the column EDR mode the fixed settings for the Auto, Semi and Fix modes of the image plate reader are listed. The display parameters table contains all original Fuji image processing parameters for the unsharp masking technique.

Appendix Y

Exposed Anatomical Regions/
Applicable Menus/Display Parameters

Y

Exposed Anatomical Regions/Applicable Menus/Display Parameters

[Head 1]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
Plain	1	0000	SKULL, GENERAL (PA)	Observation of the entire skull and facial bone, entire cerebral ventricles and paranasal sinus, and gnathic joint and Turkish saddle by the Towne projection and Caldwell method	
	1	0001	PARANASAL SINUS (PA)	Observation of the nasal cavity and its surroundings by the Waters method	
	1	0002	MANDIBLE (AP)	Observation of the mandible	
	1	0003	ORBIT (AP)	Observation of the orbit and optic canal	
	1	0004	HEAD, SOFT TISSUE (PA)	Observation of the cephalic soft part and mastoid process	
	1	0006	SKULL, PEDIATRICS (PA)	Observation of the entire skull of infants (3 or less years of age)	
	1	000B	EAR (AP)	Observation of the ear by the Schüller method, Sonnenkalb position, Stenvers projection, Meyer method, and other methods	
	1	000C	SKULL, AXIAL (AP)	Cephalic exposure by axial projection	
	1	000D	CEPHALOGRAPHY (AP)	Routine cephalic exposure	
	1	000E	ZYGO. (AP)	Exposure of the lateral portion of the zygomatic bone	
	1	001E	NASALAB. LAT (AP)	Exposure of the lateral portion of the nasal bone	
	1	1000	HEAD, BL. VESSEL :C (AP)	Cephalic blood vessel exposure with a contrast medium	
Contrast	1	1002	PARANASAL SINUS :C (AP)	Exposure with a contrast medium of the paranasal sinuses, the rhinopharynx and oropharynx, and the nasal cavity and nasolacrimal duct	
	1	1004	SALIVARY GLANDS :C (AP)	Parotid, sublingual, and sublingual gland exposure with a contrast medium	
	1	2000	PARANASAL SINUS :T (AP)	Tomography of paranasal sinus	
Tomography	1	2001	EAR :T (AP)	Tomography of inner and middle ear	
	1	2002	SELLA TURCICA :T (PA)	Tomography of Turkish saddle	
	1	2003	MANDIBULAR JOINT :T (AP)	Tomography of gnathic joint and mandible	
	1	2003	MANDIBULAR JOINT :T (AP)	Tomography of gnathic joint and mandible	

Exposed Anatomical Regions/Applicable Menus/Display Parameters

EDR mode						Display Parameter																								Gradation Processing		Rotation Amount		(GA)
																																Gradation Type		(GT)
																																Rotation Center		(GC)
																														Gradation Shifting Amount		Frequency Processing		(GS)
																														Frequency Rank		Frequency Type		(RN)
																														Frequency Enhancement				(RT)
																																		(RE)
Auto		Semi		Fix		Preset mode	Two-image display																One-image Display											
							Left Image								Right Image																			
PRIEF	Type	Type	Lfix	Sfix			GA	GT	GC	GS	RN	RT	RE	GA	GT	GC	GS	RN	RT	RE	GA	GT	GC	GS	RN	RT	RE							
4S	II	II	2.2	200	A	1.2	G	0.7	0.5	5	Q	0.5	1.0	A	0.7	0.2	5	Q	7.0	1.0	G	0.7	0.5	5	Q	1.0								
4S	II	II	2.2	200	A	1.2	G	0.7	0.3	6	T	0.5	0.9	A	0.6	0.0	6	T	5.0	1.2	G	0.9	0.3	6	T	0.5								
4S	II	II	2.2	200	A	1.0	F	0.9	-0.1	5	T	0.5	0.9	A	0.9	-0.2	5	T	5.0	1.0	F	0.9	-0.1	5	T	0.5								
4S	II	II	2.2	200	A	1.2	G	0.9	0.3	4	T	0.5	0.9	A	0.8	0.0	4	T	5.0	1.2	G	0.9	0.3	4	T	0.5								
-	IV	II	2.6	200	A	1.0	G	2.0	-0.5	2	Q	0.5	1.0	A	2.1	-0.3	2	Q	3.0	1.0	G	2.0	-0.5	2	Q	0.5								
4S	I	III	2.2	200	A	1.2	G	0.7	0.4	4	R	0.3	0.9	A	0.6	0.0	4	R	3.0	1.2	G	0.7	0.4	4	R	0.3								
4S	II	II	2.2	200	A	1.2	H	0.9	0.4	4	T	0.5	0.9	A	0.7	0.1	4	T	5.0	1.0	H	0.9	0.4	4	T	1.0								
4S	II	II	2.2	200	A	1.2	G	0.7	0.4	5	Q	0.5	1.0	A	0.7	0.1	5	Q	7.0	1.0	G	0.7	0.4	5	Q	1.0								
4S	I	II	2.2	200	S	0.8	G	0.7	0.4	8	T	5.0	0.8	A	0.7	-0.1	8	T	15.0	0.8	G	0.7	0.4	8	T	5.0								
-	IV	II	2.6	200	A	1.0	G	2.0	0.3	5	Q	0.5	1.0	A	2.1	0.3	5	Q	6.0	1.0	G	2.0	0.3	5	Q	0.5								
-	IV	II	2.6	200	A	1.0	G	2.0	-0.5	5	Q	0.5	1.0	A	2.1	-0.3	5	Q	6.0	1.0	G	2.0	-0.5	5	Q	0.5								
4S	II	II	2.2	200	A	1.2	G	0.7	0.6	5	T	1.0	1.0	A	0.5	0.1	5	T	7.0	1.0	G	0.7	0.6	5	T	1.5								
4S	II	II	2.2	200	A	1.2	G	0.7	0.5	4	R	1.0	1.0	A	0.5	0.0	4	R	7.0	1.0	G	0.7	0.5	4	R	1.5								
4S	II	II	2.2	200	A	1.2	G	0.7	0.1	5	R	1.0	1.0	A	0.6	0.0	4	R	7.0	1.0	G	0.7	0.1	5	R	1.5								
4S	II	II	2.2	200	A	1.2	I	0.9	0.5	4	R	1.0	1.0	A	0.6	0.0	4	R	7.0	1.2	I	0.9	0.5	4	R	1.5								
4S	II	II	2.2	200	A	1.2	I	0.9	0.5	4	R	1.0	1.0	A	0.6	0.0	4	R	7.0	1.2	I	0.9	0.5	4	R	1.0								
4S	II	II	2.2	200	A	1.2	I	0.9	0.5	4	R	1.0	1.0	A	0.6	0.0	4	R	7.0	1.2	I	0.9	0.5	4	R	1.0								
4S	II	II	2.2	200	A	1.2	I	0.9	0.5	4	R	1.0	1.0	A	0.6	0.0	4	R	7.0	1.2	I	0.9	0.5	4	R	1.0								

1
2
3
4
A
B
Y
Z

[Head 2]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
Plain	2	0009	PANAGRAPHY (PA)	Panagraphy	
	2	0016	SKULL, PED. -1 (PA)	Tomography of the entire skull of infants by low - dose exposure	
Tomog- raphy	2	2004	PANTOMO. :T (PA)	Pantomography	
Magnifi- cation	2	6001	HEAD, MAG :M (PA)	Magnification and magnification tomography of the inner ear, auditory ossicle, and other organs with 3x or higher power	

1	
2	
3	
4	
A	
B	
Y	
Z	

1	
2	
3	
4	
A	
B	
Y	
Z	

Exposed Anatomical Regions/Applicable Menus/Display Parameters

[Neck]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
Plain	1	0100	CERVICAL, GENERAL (AP)	Exposure of the whole neck; observation of the neck from the cervical spine to soft parts <i>Observation of the frontal portion of the pharynx and larynx</i>	
	1	0101	CERVICAL SPINE (AP)	Observation of the cervical spine, except through open mouth	For exposure of cervico-thoracic spine, use the 0201 "THORACIC SPINE, FRN" or 0209 "THORACIC SPINE, LAT" menu.
	1	0102	PHARYNX/LARYNX (AP)	Observation of the lateral portion of the hypopharynx, larynx, and trachea, and thyroid gland	For exposure of the frontal portion, use the 0100 "CERVICAL, GENERAL" menu.
	1	0104	CERVIC. PEDIATRICS (AP)	General view of the neck of infants (3 years old or less)	
	1	0106	OPEN MOUTH (AP)	Observation through the open mouth	
Contrast	1	1100	CERVIC. BL, VESSEL :C (AP)	Cervical blood vessel exposure with a contrast medium	
	1	1101	PHARYNX/LARYNX :C (AP)	Larynx, hypopharynx, and thyroid gland exposure with a contrast medium	
	1	1102	CERVIC, ESOPHAGUS :C (AP)	Exposure of the neck from the hypopharynx to the upper portion of the esophagus with barium	
Tomography	1	2100	CERVICAL SPINE :T (AP)	Tomography of cervical spine	For tomography of the cervicothoracic spines, use the 2203 "THORA.SPINE, FRN" or 2204 "THORA SPINE, LAT" menu.
	1	2102	PHARYNX/LARYNX :T (AP)	Tomography of the hypopharynx, larynx, and upper portion of the trachea	
Plain	2	0105	LARYNX(<35KV) (AP)	Observation of the lateral portion of the neck with the thyroid gland as the target (exposure of soft parts with an MO bulb at 35 kV or lower)	
	2	0114	CERVIC., PED.-1 (AP)	General view of the neck of infants by low-dose exposure	
Contrast	2	1105	CERVICAL, MYELO. :C (AP)	Cervical spinal canal, extradural space, and intervertebral disc exposure with a contrast medium	
	2	1106	CERVICAL, LYMPHA :C (AP)	Cervical lymphatic duct and lymph node exposure with a contrast medium	
	2	1107	THORACERVICAL,MYELO.C (AP)	Thoracic spinal canal and extradural space exposure with a contrast medium	
Magnification	2	4100	CERVIC., MAG :M (AP)	3x or more magnification of the pharynx, larynx, and other organs	

Exposed Anatomical Regions/Applicable Menus/Display Parameters

EDR mode						Display Parameter																							
						Frequency Processing																							
						Gradation Processing																							
						Rotation Amount																							
						Gradation Type																							
						Rotation Center																							
						Gradation Shifting Amount																							
						Frequency Rank																							
						Frequency Type																							
						Frequency Enhancement																							
						Two-image display														One-image Display									
Auto		Semi		Fix		Preset mode	Left Image								Right Image														
PRIEF	Type	Type	Lfix	Sfix	GA		GT	GC	GS	RN	RT	RE	GA	GT	GC	GS	RN	RT	RE	GA	GT	GC	GS	RN	RT	RE			
4S	I	II	2.4	200	A	0.9	F	0.6	0.3	4	R	0.5	1.0	A	0.7	0.1	4	R	5.0	0.9	F	0.6	0.3	4	R	0.5			
4S	II	II	2.4	200	A	1.1	F	0.6	0.5	5	P	0.5	1.0	A	0.5	0.1	5	P	5.0	1.1	F	0.6	0.5	5	P	0.5			
4S	I	II	2.4	200	A	1.0	I	0.6	0.3	4	R	0.5	1.0	A	0.7	0.1	4	R	5.0	1.0	I	0.6	0.3	4	R	0.5			
4S	I	III	2.4	200	A	1.3	F	0.7	0.0	4	R	0.3	0.9	A	0.6	0.0	4	R	3.0	1.3	F	0.7	0.0	4	R	0.3			
4S	II	II	2.2	200	A	1.2	G	0.7	0.5	5	Q	0.5	1.0	A	0.7	0.2	5	Q	7.0	1.0	G	0.7	0.5	5	Q	1.0			
4S	I	II	2.4	200	A	1.0	I	0.6	0.8	4	P	1.0	1.0	A	0.5	0.3	4	P	5.0	1.0	I	0.6	0.8	4	P	1.0			
4S	I	II	2.4	200	A	1.0	I	0.6	0.4	4	R	1.0	1.0	A	0.7	0.2	4	R	5.0	1.0	I	0.6	0.4	4	R	1.0			
4S	II	II	2.4	200	A	1.0	I	0.6	0.4	4	R	1.0	1.0	A	0.7	0.2	4	R	5.0	1.0	I	0.6	0.4	4	R	1.0			
1S	II	II	2.4	200	A	1.2	I	0.6	0.5	3	Q	1.0	1.0	A	0.5	0.3	3	Q	5.0	1.0	I	0.6	0.5	3	Q	1.5			
1S	I	II	2.6	200	A	1.2	I	0.6	0.4	3	Q	1.0	1.0	A	0.6	0.1	3	Q	5.0	1.0	I	0.6	0.4	3	Q	1.5			
4S	I	II	2.4	200	A	1.0	I	2.0	-0.2	4	R	0.5	1.0	A	0.9	-0.1	4	R	5.0	1.0	I	2.0	-0.2	4	R	0.5			
4S	I	III	2.4	200	A	1.3	F	0.7	0.0	7	X	0.4	1.3	F	0.7	0.0	7	R	0.0	1.3	F	0.7	0.0	7	X	0.4			
4S	I	II	2.4	200	A	1.0	F	0.6	0.5	5	P	1.0	1.0	A	0.5	0.1	5	P	5.0	1.0	F	0.6	0.5	5	P	1.0			
4S	I	II	2.4	200	A	1.0	I	0.6	0.5	4	P	1.0	1.0	A	0.3	-0.1	4	P	5.0	1.0	I	0.6	0.5	4	P	1.0			
4S	I	II	2.4	200	A	1.0	F	0.6	0.5	5	P	1.0	1.0	A	0.5	0.1	5	P	5.0	1.0	F	0.6	0.5	5	P	1.0			
4	II	I	2.4	200	S	1.0	I	2.0	0.3	3	R	1.0	1.0	A	1.9	0.4	3	R	5.0	1.0	I	2.0	0.3	3	R	1.0			

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Exposed Anatomical Regions/Applicable Menus/Display Parameters

[Chest 1]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
Plain	1	0200	CHEST, GENERAL (PA)	Plain thoracic exposure; observation of the lung field and mediastinum for shadows	
	1	0201	THORA. SPINE, FRN (AP)	Observation of the thoracic and cervicothoracic spines	For exposure of the thoracolumbar spine, use the 0501 "LUMBAR SPINE" menu and for exposure of the lung, adjust the radiation field as small as double the size of the thoracic spine.
	1	0209	THORA. SPINE, LAT (AP)	Observation of the thoracic and cervicothoracic spine (this menu is used only when the enface radiogram is different in density from the oblique radiogram in particular)	For exposure of the cervicothoracic spine, use the 0501 "LUMBAR SPINE" menu.
	1	0202	UPPER RIB (AP)	Observation of the superior ribs	
	1	0203	LOWER RIB (PA)	Observation of the inferior ribs	
	1	0204	CLAVICLE (AP)	Observation of the clavicle	
	1	0205	SCAPULA (AP)	Observation of the scapula	
	1	0206	STERNUM (PA)	Observation of the sternum (manubrium, sternal body, and xiphoid process)	
	1	0207	CHEST, PEDIATRICS (AP)	Plain thoracic exposure in infants (3 or less years of age)	
	1	020A	CHEST, SOFT TISSUE (AP)	Exposure of thoracic soft parts; observation of the chest wall, axilla, and other sites	
	1	020B	SHOULDER JNT, FRN (AP)	Observation of the frontal and peripheral soft parts of the shoulder joint	Use a grid.
	1	020C	SHOULDER JNT, AXL (AP)	Observation of the frontal and peripheral soft parts of the shoulder joint	Use a curve cassette or make an exposure in the caudal direction.
	1	020D	WHOLE SPINE (AP)	Exposure of the whole spine of infants which can be recorded on a 14 x 17" IP	
Contrast	1	1200	CHEST, BL. VESSEL :C (AP)	Thoracic blood vessel exposure with a contrast medium	
	1	1201	BRONCHUS :C (AP)	Bronchial exposure with a contrast medium	
	1	1202	CHEST, ESOPHAGUS :C (AP)	Thoracic esophageal exposure with a contrast medium	
Tomography	1	2200	LUNG :T (AP)	Mainly tomography of the lung field; observation of the lung field and rib	
	1	2201	MEDIASTINUM :T (AP)	Mainly tomography of the mediastinum	

Exposed Anatomical Regions/Applicable Menus/Display Parameters

EDR mode						Display Parameter																								Gradation Processing	Rotation Amount	(GA)	
																														Gradation Type	Rotation Center	(GT)	
																														Gradation Shifting Amount	Frequency Processing	Frequency Rank	(GC)
																														Frequency Type	Frequency Enhancement	(GS)	
																														Frequency Type	Frequency Enhancement	(RN)	
																														Frequency Type	Frequency Enhancement	(RT)	
																														Frequency Type	Frequency Enhancement	(RE)	
Auto		Semi		Fix		Preset mode	Two-image display																One-image Display										
							Left Image								Right Image																		
PRIEF	Type	Type	Lfix	Sfix			GA	GT	GC	GS	RN	RT	RE	GA	GT	GC	GS	RN	RT	RE	GA	GT	GC	GS	RN	RT	RE						
4S	II	IV	2.2	200	A	1.0	E	1.6	-0.2	4	R	0.5	0.9	A	1.5	-0.2	4	R	5.0	0.8	E	1.6	-0.2	4	R	0.5							
4S	II	II	2.2	200	A	1.1	G	0.9	0.6	5	T	1.0	1.0	A	0.7	0.2	5	T	5.0	1.1	G	0.9	0.6	5	T	1.0							
4S	VI	II	2.2	200	A	1.0	G	0.9	0.1	5	T	1.0	1.0	A	1.0	0.0	5	T	5.0	1.0	G	0.9	0.1	5	T	1.0							
4S	II	II	2.2	200	A	0.8	O	1.6	-0.2	5	R	1.0	0.9	A	1.6	-0.1	5	R	5.0	0.7	O	1.6	-0.2	5	R	1.5							
4S	II	II	2.2	200	A	0.7	O	0.6	-0.1	5	R	1.0	1.0	A	0.8	0.0	5	R	5.0	0.7	O	0.6	-0.1	5	R	1.0							
4S	II	II	2.2	200	A	1.0	F	0.6	0.0	5	T	1.0	0.9	A	0.9	0.0	5	T	5.0	1.0	F	0.6	0.0	5	T	1.0							
4S	II	II	2.2	200	A	1.2	G	0.6	0.2	5	T	1.0	1.0	A	0.7	0.0	5	T	5.0	1.2	G	0.6	0.2	5	T	1.0							
4S	II	II	2.2	200	A	1.0	O	1.6	0.0	5	R	1.0	0.9	A	1.4	-0.1	5	R	7.0	1.0	O	1.6	0.0	5	R	1.0							
4S	VI	II	2.2	200	A	1.3	O	1.6	-0.35	3	R	0.0	1.0	A	1.5	-0.6	3	R	1.0	1.3	O	1.6	-0.35	3	R	0.0							
-	IV	II	2.6	200	A	1.1	F	2.0	0.0	3	Q	1.0	0.7	A	1.6	-0.2	3	Q	7.0	1.1	F	2.0	0.0	3	Q	1.0							
4S	VII	II	2.2	200	A	1.2	G	0.6	0.1	5	T	1.0	1.0	A	0.9	0.0	5	T	5.0	1.2	G	0.6	0.1	5	T	1.0							
4S	VII	II	2.0	200	A	1.0	O	0.6	0.5	5	T	1.0	1.0	A	0.6	0.2	5	T	5.0	1.0	O	0.6	0.5	5	T	1.0							
4S	II	II	2.2	200	A	1.2	G	0.9	0.6	5	T	1.0	1.2	A	0.9	0.2	5	T	5.0	1.0	G	0.9	0.6	5	T	1.5							
4S	II	IV	2.2	200	A	1.0	E	1.6	0.2	5	T	1.0	0.9	A	1.3	0.0	5	T	5.0	1.0	E	1.6	0.2	5	T	1.0							
4S	II	II	2.2	200	A	1.0	E	1.6	0.0	5	T	1.0	0.9	A	1.3	-0.2	5	T	5.0	1.0	E	1.6	0.0	5	T	1.0							
1	II	II	2.2	200	A	1.0	N	0.3	0.1	8	T	1.0	1.0	A	0.7	0.0	8	T	7.0	1.0	N	0.3	0.1	8	T	1.0							
1	II	IV	2.2	200	A	1.0	E	1.6	0.0	4	R	1.0	0.9	A	1.4	-0.1	4	R	7.0	1.0	E	1.6	0.0	4	R	1.0							
1	II	II	2.2	200	A	1.0	E	1.6	0.4	4	R	1.0	0.9	A	1.3	0.1	4	R	7.0	1.0	E	1.6	0.4	4	R	1.0							

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Exposed Anatomical Regions/Applicable Menus/Display Parameters

[Chest 2]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
Tomography	1	2202	STERNUM :T (AP)	Sternal tomography	
	1	2203	THORA. SPINE, FRN :T (AP)	Thoracic spinal tomography	For tomography of the cervicothoracic spines, use the 2500 "LUMBAR SPINE" menu.
	1	2204	THORA, SPINE, LAT :T (AP)	Thoracic spinal tomography (this menu is used when the enface radiogram is different in density from the oblique radiogram)	For tomography of the cervicothoracic spines, use the 2500 "LUMBAR SPINE" menu.
	1	2205	SHOULDER JOINT :T (AP)	Tomography of the shoulder joint and its periphery brachial region	
Plain	2	0210	CHEST, SPECIAL-1 (PA)	For pneumoconiosis diagnosis	Load the system with the display parameters usually considered appropriate for coniosis staging.
	2	0220	CHEST, SPECIAL-2 (PA)	For mass radiography	Load the system with the display parameter considered fit for screening.
	2	0217	CHEST, PED.-1 (AP)	Low-dose plain thoracic exposure in infants	
	2	020E	CHEST, GENERAL-2 (PA)	Observation of a thin shadow in the lung field (infiltrative alveolar shadow)	
	2	020F	CHEST, PORTABLE (AP)	Observation of chest for prognosis	
	2	0211	THORA. SPINE, OBL (PA)	Observation of thoracic spine in oblique radiogram	
Contrast	2	1205	CHEST, MYELO., FRN :C (AP)	Exposure with a contrast medium of the spinal canal and intervertebral discs of the thoracic spine	
	2	1206	CHEST, LYMPHA, FRN :C (AP)	Thoracic lymphatic duct and lymph node exposure with a contrast medium	
	2	1204	CHEST, MYELO., LAT :C (AP)	Exposure with a contrast medium of the spinal canal and intervertebral discs of the thoracic spine (this menu is used when the enface radiogram is different in density from the oblique radiogram)	
	2	1207	CHEST, LYMPHA, LAT :C (AP)	Thoracic lymphatic duct and lymph node exposure with a contrast medium (this menu is used when the enface radiogram is different in density from the oblique radiogram)	
	2	1208	SHLD, JNT, ARTHRO :C (AP)	Shoulder joint exposure with a contrast medium	Use a grid.
Magnification	2	4208	CHEST, MAG :M (AP)	3x or more magnification of the lung field, thoracic lymphoduct, and other sites	

Exposed Anatomical Regions/Applicable Menus/Display Parameters

EDR mode						Display Parameter																								Gradation Processing	Rotation Amount	(GA)
Auto		Semi		Fix		Preset mode	Two-image display																		Frequency Processing	Gradation Type	Rotation Center	(GT)				
							Left Image								Right Image								One-image Display						Gradation Shifting Amount	(GC)		
PRief	Type	Type	Lfix	Sfix	GA		GT	GC	GS	RN	RT	RE	GA	GT	GC	GS	RN	RT	RE	GA	GT	GC	GS	RN		RT	RE	Frequency Rank	(RN)			
1	II	II	2.2	200	A	1.0	E	1.6	0.4	4	R	1.0	0.9	A	1.3	0.1	4	R	7.0	1.0	E	1.6	0.4	4	R	1.0	Frequency Type	(RT)				
1	II	II	2.2	200	A	1.1	G	0.9	0.6	4	T	1.0	1.0	A	0.7	0.2	4	T	7.0	1.1	G	0.9	0.6	4	T	1.0	Frequency Enhancement	(RE)				
1	II	II	2.2	200	A	1.0	G	0.9	0.1	4	T	1.0	1.0	A	1.0	0.0	4	T	7.0	1.0	G	0.9	0.1	4	T	1.0						
1	II	II	2.2	200	A	1.0	O	0.6	0.4	3	T	1.0	1.0	A	0.6	0.0	3	T	5.0	1.0	O	0.6	0.4	3	T	1.0						
4S	II	IV	2.2	200	A	1.0	E	1.6	-0.2	4	R	0.3	-0.9	A	0.5	-1.15	4	R	0.5	1.1	E	1.6	-0.2	4	R	0.3						
4S	II	IV	2.2	200	A	1.0	E	1.6	-0.2	0	R	0.5	0.9	A	1.5	-0.2	0	R	3.0	0.8	E	1.6	-0.2	0	R	0.5						
4S	II	II	2.2	200	A	1.0	D	1.6	-0.3	7	X	0.4	1.0	D	1.6	-0.3	7	R	0.0	1.0	D	1.6	-0.3	7	X	0.4						
4S	II	IV	2.2	200	A	1.0	P	1.6	0.0	4	R	0.2	0.9	A	1.5	-0.2	4	R	5.0	1.0	P	1.6	0.0	9	R	0.5						
-	IV	IV	2.2	200	A	1.2	E	1.6	-0.2	4	R	0.5	1.0	E	1.6	-0.3	4	R	5.0	1.2	E	1.6	-0.2	4	R	0.5						
4S	II	II	2.2	200	A	1.1	G	0.9	0.4	4	T	1.0	1.0	A	0.7	0.1	4	T	7.0	1.1	G	0.9	0.4	4	T	1.0						
4S	II	II	2.2	200	A	1.1	G	0.9	0.6	5	T	1.0	1.0	A	0.7	0.2	5	T	5.0	1.1	G	0.9	0.6	5	T	1.0						
4S	II	II	2.2	200	A	1.1	G	0.9	0.6	5	T	1.0	1.0	A	0.7	0.2	5	T	5.0	1.1	G	0.9	0.6	5	T	1.0						
4S	II	II	2.2	200	A	1.0	G	0.9	0.1	5	T	1.0	1.0	A	1.0	0.0	5	T	5.0	1.0	G	0.9	0.1	5	T	1.0						
4S	II	II	2.2	200	A	1.0	G	0.9	0.1	5	T	1.0	1.0	A	1.0	0.0	5	T	5.0	1.0	G	0.9	0.1	5	T	1.0						
4S	II	II	2.2	200	A	1.2	G	0.6	0.25	5	T	1.0	1.0	A	0.9	0.0	5	T	5.0	1.2	G	0.6	0.25	5	T	1.0						
4	II	II	2.0	200	S	1.2	E	1.6	-0.2	3	R	1.0	0.9	A	1.5	-0.2	3	R	5.0	1.0	E	1.6	-0.2	3	R	1.0						

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Exposed Anatomical Regions/Applicable Menus/Display Parameters

[Breast]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
Plain	1	0300	BREAST (AP)	Observation of the whole breast Available for other exposures including spot exposure	Use the Mo bulb.
	1	0302	BREAST-CHEST WALL (AP)	Observation of the breast including the chest wall or small breasts such as male breast	Use the Mo bulb.
Contrast	1	1300	LACTIFEROUS DUCT :C (AP)	Exposure of lactiferous duct with a contrast medium	
Plain	2	0301	BREAST, SPOT (AP)	Spot exposure of the breast (this menu is used for spot exposure only)	
	2	0303	BREAST-CHEST WALL-2 (AP)	Observation of breast-chest wall when collimation stand is used.	
	2	0304	BREAST :W (AP)	Observation of the whole breast Tungsten bulb is used.	For the tungsten bulb
	2	0305	BREAST-CHEST WALL :T (AP)	Observation of the breast including the chest wall or small breasts such as male breast Tungsten bulb is used.	For the tungsten bulb
	2	0309	L MAMMOGRAPHY. CC :T (AP)	A test menu used for CC image observation of the left breast. Use mammography X-ray equipment.	
	2	0309	R MAMMOGRAPHY. CC :T ()	A test menu used for CC image observation of the right breast. Use mammography X-ray equipment.	
	2	0319	L MAMMOGRAPHY. MLO :T (AP)	A test menu used for MLO image observation of the left breast. Use mammography X-ray equipment.	
	2	0319	R MAMMOGRAPHY. MLO :T ()	A test menu used for MLO image observation of the right breast. Use mammography X-ray equipment.	
Contrast	2	1301	LACTEAL CYST :C (AP)	Mammary cyst exposure with a contrast medium	
Magnifi- cation	2	4300	BREAST, MAG :M (AP)	3x or more magnification of the breast	

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[Abdomen]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
Plain	1	0400	ABDOMEN, GENERAL (AP)	Plain abdominal exposure; observation of the whole abdomen; thoracoabdominal exposure	
	1	0402	ABDOM., PEDIATRICS (AP)	Observation of the abdomen and pelvic part of infants (3 years old or less); thoracoabdominal exposure in infants	
	1	0403	ABDOM., SOFT TISS. (AP)	Observation of abdominal soft parts	
Contrast	1	1400	ABDOM., BL. VESSEL :C (AP)	Abdominal blood vessel exposure with a contrast medium	
	1	1401	STOMACH :C (AP)	Gastric exposure with a contrast medium by filling, compression, double-contrast, and relief methods	
	1	1402	INTESTINE :C (AP)	Large and small intestine exposure by the barium enema and barium meal methods	
	1	1403	IVP :C (AP)	Venous, intravenous drip type, and retrograde pyelography	
	1	1404	GALL./PAN.DUCT :C (AP)	Venous cholangiography, intravenous drip type cholangiography, oral cholecystography, PTC, and ERCP	
Tomography	1	3400	GALLBLADDER :T (AP)	Visualization tomography of the gallbladder	
	1	3401	KIDNEY :T (AP)	Visualization tomography of the renal pelvis	
Plain	2	0412	ABDOM., PED. -1 (AP)	Low-dose exposure of the abdomen, pelvic part, and thoracoabdominal part of infants	
Contrast	2	1405	ABDOMEN, MYELO :C (AP)	Spinal canal and intervertebral disc exposure with a contrast medium	
	2	1406	ABDOMEN, LYMPHA :C (AP)	Abdominal lymphatic duct and lymph node exposure with a contrast medium	
Magnification	2	5406	ABDOMEN, MAG :M (AP)	3x or more magnification of the abdominal lymphatic duct, bones, and other organs	

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Exposed Anatomical Regions/Applicable Menus/Display Parameters

[Pelvis 1]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
Plain	1	0500	PELVIS, GENERAL (AP)	Observation of the pelvis, ilium, and peripheral soft parts	
	1	0501	LUMBAR SPINE (AP)	Observation of the lumbar and thoracolumbar spine	
	1	0502	SACRUM/COCCYX (AP)	Observation of the sacrum and coccyx	
	1	0503	UTERUS, PREGNANCY (AP)	Exposure of fetus and placenta	
	1	0504	PELVIMETRY (AP)	Measurement of the pelvic dimensions or proportions	
	1	0506	PELVIS, PEDIATRICS (AP)	Observation of the pelvis and peripheral soft parts of infants (3 years old or less)	
	1	0507	LUMB., SOFT TISSUE (AP)	Observation of soft parts of the abdomen, kidney, and other organs	
	1	0508	HIP JOINT (AP)	Observation of the hip joint (Use the FIX MODE when protector is used.)	
	1	050A	HIP J., PEDIATRICS (AP)	Observation of the hip joint of infants - 3 or less years of age. (Use the FIX MODE when protector is used.)	
Contrast	1	1500	PELVIS, BL. VESSEL :C (AP)	Pelvic blood vessel exposure with a contrast medium	
	1	1501	URINARY ORGAN :C (AP)	Urinary bladder and urethra exposure with a contrast medium	
Tomography	1	2500	LUMBAR SPINE :T (AP)	Tomography of the lumbar and thoracolumbar spine	
	1	2501	SACRUM :T (AP)	Tomography of the sacrum	
	1	2502	HIP JOINT :T (AP)	Tomography of the hip joint and femoral region	
Plain	2	0516	PELVIS, PED.-1 (AP)	Low-dose exposure of the pelvis and peripheral soft parts of infants	
	2	051A	HIP J., PED.-1 (AP)	Low-dose infantile hip joint exposure (Use the FIX MODE when protector is used.)	
	2	050C	HIP JOINT, AXL (AP)	Observation of the hip joint by axial projection	

Exposed Anatomical Regions/Applicable Menus/Display Parameters

EDR mode						Display Parameter																					Gradation Processing	Rotation Amount	(GA)			
																											Gradation Type	Rotation Type	(GT)			
																											Rotation Center	Rotation Center	(GC)			
																											Gradation Shifting Amount	Gradation Shifting Amount	(GS)			
																											Frequency Processing	Frequency Rank	(RN)			
																											Frequency Type	Frequency Type	(RT)			
																											Frequency Enhancement	Frequency Enhancement	(RE)			
Auto		Semi		Fix		Preset mode	Two-image display																One-image Display									
							Left Image								Right Image																	
PRIEF	Type	Type	Lfix	Sfix	GA		GT	GC	GS	RN	RT	RE	GA	GT	GC	GS	RN	RT	RE	GA	GT	GC	GS	RN	RT	RE						
4S	II	II	2.0	200	A	0.9	O	0.6	0.2	4	T	1.0	1.0	A	0.6	-0.2	4	T	5.0	0.9	O	0.6	0.2	4	T	1.0						
4S	II	II	2.0	200	A	1.1	O	0.9	0.4	5	T	1.0	1.0	A	0.9	0.1	5	T	5.0	1.1	O	0.9	0.4	5	T	1.0						
4S	II	II	2.0	200	A	0.9	O	0.9	0.2	5	T	1.0	1.0	A	1.2	0.1	5	T	5.0	0.9	O	0.9	0.2	5	T	1.0						
4S	II	II	2.0	200	A	1.1	D	0.6	0.2	3	Q	1.0	0.9	A	0.7	0.0	3	Q	5.0	1.1	D	0.6	0.2	3	Q	1.0						
4S	II	II	2.0	200	A	1.1	D	0.6	0.2	3	Q	1.0	0.9	A	0.7	0.0	3	Q	5.0	1.1	D	0.6	0.2	3	Q	1.0						
4S	II	II	2.0	200	A	1.3	D	1.6	0.2	5	R	0.3	0.9	A	1.2	-0.2	5	R	3.0	1.3	D	1.6	0.2	5	R	0.3						
-	IV	II	2.6	200	A	1.1	F	2.0	0.0	3	Q	1.0	0.7	A	1.6	-0.2	3	Q	7.0	1.1	F	2.0	0.0	3	Q	1.0						
4S	II	II	2.0	200	A	1.3	D	1.6	0.4	5	R	0.5	0.9	A	1.6	0.0	5	R	5.0	1.3	D	1.6	0.4	5	R	0.5						
4S	II	II	2.0	200	A	1.3	D	1.6	0.2	5	R	0.3	0.9	A	1.2	-0.2	5	R	3.0	1.3	D	1.6	0.2	5	R	0.3						
4S	II	II	2.0	200	A	0.9	O	0.6	0.5	4	T	1.0	1.0	A	0.5	0.0	4	T	5.0	0.9	O	0.6	0.5	4	T	1.0						
4S	II	II	2.0	200	A	1.2	D	0.6	0.3	4	T	1.0	1.0	A	0.6	0.0	4	T	7.0	1.2	D	0.6	0.3	4	T	1.0						
1	II	II	2.0	200	A	1.1	O	0.9	0.4	4	Q	1.0	1.0	A	0.9	0.1	4	Q	7.0	1.1	O	0.9	0.4	4	Q	1.0						
1	II	II	2.0	200	A	1.1	O	0.9	0.8	4	Q	1.0	1.0	A	0.9	0.5	4	Q	7.0	1.1	O	0.9	0.8	4	Q	1.0						
1	II	II	2.0	200	A	1.0	O	0.6	0.5	3	T	1.0	1.0	A	0.6	0.1	3	T	5.0	1.0	O	0.6	0.5	3	T	1.0						
4S	II	II	2.0	200	A	1.3	D	1.6	0.2	7	X	0.4	1.3	D	1.6	0.2	7	R	0.0	1.3	D	1.6	0.2	7	X	0.4						
4S	II	II	2.0	200	A	1.3	D	1.6	0.2	7	X	0.4	1.3	D	1.6	0.2	7	R	0.0	1.3	D	1.6	0.2	7	X	0.4						
-	V	II	2.0	200	A	0.8	O	0.6	-0.2	5	T	1.0	0.8	O	0.6	0.4	5	T	1.0	0.8	O	0.6	-0.2	5	T	1.0						

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[Pelvis 2]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
Contrast	2	1502	HYSTERO. :C (AP)	Uterus and salpinx exposure with a contrast medium	
	2	1503	SEMI. VES., VAS. :C (AP)	Seminal vesicle and seminal duct exposure with a contrast medium	
	2	1505	PELVIS, MYELO. :C (AP)	Pelvic spinal canal, extradural space, and intervertebral disc exposure with a contrast medium	
	2	1506	PELVIS, LYMPHA :C (AP)	Pelvic lymphatic duct and lymph node exposure with a contrast medium	
	2	1507	HIP JNT, ARTHRO. :C (AP)	Hip joint exposure with a contrast medium	
Magnification	2	5506	PELVIS, MAG :M (AP)	3x or more magnification of the pelvic lymphatic duct, bone, and other organs	

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[Upper Extremity 1]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
Plain	1	0600	UP. ARM/ELBOW JNT (AP)	Observation of the humerus, its soft part, and the elbow joint	
	1	0601	FO. ARM/WRIST JNT (AP)	Observation of the antebrachial bone, its soft part, and the wrist joint	
	1	0603	UP. ARM. SOFT TISS. (AP)	Observation of the brachial soft part as the main target	
	1	0605	FO. ARM, SOFT TISS. (AP)	Observation of the antebrachial soft part as the main target	
	1	0606	HAND (AP)	Observation of the metacarpal bone and peripheral soft parts	
	1	0607	FINGER (AP)	Observation of the phalanges and peripheral soft parts	
	1	0608	ARM, PEDIATRICS (AP)	Observation of the arm of infants (3 years old or less)	
	1	0609	HAND, PEDIATRICS (AP)	Observation of the hand of infants (3 years old or less)	
	1	060B	UP. EXTREMITY, AXL (AP)	Elbow joint and carpal tunnel exposure by axial projection	
Contrast	1	1600	UP. ARM, BL. VESSEL :C (AP)	Brachial blood vessel exposure with a contrast medium	
	1	1601	FO. ARM, BL. VESSEL :C (AP)	Antebrachial blood vessel exposure with a contrast medium	
	1	1602	HAND, BL. VESSEL :C (AP)	Hand blood vessel exposure with a contrast medium	
Tomography	1	2601	ELBOW JOINT :T (AP)	Elbow joint tomography	
Contrast	2	1610	UPPER ARM, LYMPHA :C (AP)	Brachial lymphatic duct and lymph node exposure with a contrast medium	
	2	1611	FORE ARM, LYMPHA :C (AP)	Antebrachial lymphatic duct and lymph node exposure with a contrast medium	
	2	1612	HAND, LYMPHA :C (AP)	Exposure with a contrast medium of the lymphatic duct and lymph node in the hand	
	2	1620	ELBOW JNT, ARTHRO :C (AP)	Elbow joint exposure with a contrast medium	
	2	1622	WRIST JNT, ARTHRO :C (AP)	Exposure of the joint of the hand with a contrast medium	

Exposed Anatomical Regions/Applicable Menus/Display Parameters

EDR mode						Display Parameter																							
						Two-image display																		One-image Display					
						Auto		Semi		Fix		Preset mode	Left Image								Right Image								
PRIEF	Type	Type	Lfix	Sfix	GA	GT	GC	GS	RN	RT	RE		GA	GT	GC	GS	RN	RT	RE	GA	GT	GC	GS	RN	RT	RE			
4S	I	III	2.0	200	A	1.0	O	0.6	0.4	5	T	0.5	1.0	A	0.6	0.0	5	T	5.0	0.8	O	0.6	0.4	5	T	1.0			
4S	I	III	2.0	200	A	1.0	O	0.6	0.2	5	T	0.5	1.0	A	0.8	0.0	5	T	5.0	0.8	O	0.6	0.2	5	T	1.0			
4S	I	III	2.0	200	A	1.0	O	0.6	0.4	3	T	0.5	1.0	A	0.6	0.0	3	T	5.0	1.0	O	0.6	0.4	3	T	0.5			
4S	I	III	2.0	200	A	1.0	O	0.6	0.2	3	T	0.5	1.0	A	0.6	0.0	3	T	5.0	1.0	O	0.6	0.2	3	T	0.5			
4S	I	III	2.0	200	A	0.8	O	0.6	0.4	5	T	0.5	0.9	A	0.6	0.2	5	T	5.0	0.9	O	0.6	0.5	5	T	0.5			
4S	I	III	2.0	200	A	0.9	O	0.6	0.3	5	T	0.5	0.9	A	0.7	0.1	5	T	5.0	0.9	O	0.6	0.3	5	T	0.5			
4S	I	III	2.0	200	A	1.0	O	0.6	0.5	5	T	0.3	1.0	A	0.6	0.1	5	T	3.0	1.0	O	0.6	0.5	5	T	0.3			
4S	I	III	2.0	200	A	0.8	O	0.6	0.4	5	T	0.3	0.9	A	0.7	0.1	5	T	3.0	0.8	O	0.6	0.4	5	T	0.3			
-	IV	III	2.0	200	A	1.1	F	2.0	0.0	5	T	1.0	0.7	A	1.6	-0.2	5	T	7.0	1.1	F	2.0	0.0	5	T	1.0			
4S	I	III	2.0	200	A	1.0	O	0.6	0.5	4	T	1.0	1.0	A	0.5	0.0	4	T	5.0	0.8	O	0.6	0.5	4	T	1.5			
4S	I	III	2.0	200	A	1.0	O	0.6	0.3	4	T	1.0	1.0	A	0.7	0.0	4	T	5.0	0.8	O	0.6	0.3	4	T	1.5			
4S	I	III	2.0	200	A	0.9	O	0.6	0.6	4	T	1.0	0.9	A	0.7	0.2	4	T	5.0	0.8	O	0.6	0.6	4	T	1.5			
1	I	III	2.0	200	A	1.0	O	0.6	0.4	5	T	1.0	1.0	A	0.6	0.0	5	T	5.0	0.9	O	0.6	0.4	5	T	1.5			
4S	I	III	2.0	200	A	1.0	O	0.6	0.5	4	T	1.0	1.0	A	0.5	0.0	4	T	5.0	0.8	O	0.6	0.5	4	T	1.5			
4S	I	III	2.0	200	A	1.0	O	0.6	0.3	4	T	1.0	1.0	A	0.7	0.0	4	T	5.0	0.8	O	0.6	0.3	4	T	1.5			
4S	I	III	2.0	200	A	0.9	O	0.6	0.6	4	T	1.0	0.9	A	0.7	0.2	4	T	5.0	0.8	O	0.6	0.6	4	T	1.5			
4S	I	III	2.0	200	A	1.0	O	0.6	0.4	3	T	1.0	1.0	A	0.6	0.3	3	T	5.0	0.8	O	0.6	0.4	3	T	1.5			
4S	I	III	2.0	200	A	1.0	O	0.6	0.2	3	T	1.0	1.0	A	0.8	0.0	3	T	5.0	0.8	O	0.6	0.2	3	T	1.5			

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[Upper Extremity 2]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
Magnifi- cation	2	4607	UP. EXTREMITY, MAG :M (AP)	3x or more magnification of the phalanges and other bones	

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[Lower Extremity 1]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
Plain	1	0700	THIGH/KNEE JOINT (AP)	Observation of the femoral bone, soft tissues and the knee (It should be noted however that knee joint observation by axial projection is excluded.)	
	1	0701	LOWER LEG (AP)	Observation of the crural bone and soft part	
	1	0703	THIGH, SOFT TISS. (AP)	Observation of the femoral soft part as the main target	
	1	0705	LO. LEG, SOFT TISS. (AP)	Observation of the crural soft part as the main target	
	1	0706	FOOT (AP)	Observation of the foot, articulation, tarsal bone, and calcaneus by axial projection	
	1	0707	TOE (AP)	Observation of the toe and phalanges	
	1	0708	LEG. PEDIATRICS (AP)	Observation of the lower extremities of infants (3 years old or less)	
	1	0709	FOOT, PEDIATRICS (AP)	Observation of the foot of infants (3 years old or less)	
	1	070B	PATELLA, AXIAL (AP)	Patellar exposure by axial projection	
Contrast	1	1700	THIGH, BL. VESSEL :C (AP)	Femoral blood vessel exposure with a contrast medium	
	1	1701	LO. LEG, BL. VESSEL :C (AP)	Crural blood vessel exposure with a contrast medium	
	1	1702	FOOT, BL. VESSEL :C (AP)	Foot blood vessel exposure with a contrast medium	
Tomography	1	2701	KNEE JOINT :T (AP)	Knee joint tomography	
	1	2702	ANKLE JOINT :T (AP)	Ankle joint tomography	
Contrast	2	1710	THIGH, LYMPHA :C (AP)	Femoral lymphatic duct and lymph node exposure with a contrast medium	
	2	1711	LOWER LEG, LYMPHA :C (AP)	Crural lymphatic duct and lymph node exposure with a contrast medium	
	2	1712	FOOT, LYMPHA :C (AP)	Exposure of the lymphatic duct and lymph node of the foot with a contrast medium	
	2	1720	KNEE JNT, ARTHRO :C (AP)	Knee joint exposure with a contrast medium	

Exposed Anatomical Regions/Applicable Menus/Display Parameters

EDR mode						Display Parameter																								Gradation Processing	Rotation Amount	(GA)	
																														Gradation Type	Rotation Center	(GT)	
																														Gradation Shifting Amount	Frequency Processing	Frequency Rank	(GC)
																														Frequency Type	Frequency Enhancement	(GS)	
																														Frequency Type	Frequency Enhancement	(RN)	
																														Frequency Type	Frequency Enhancement	(RT)	
																														Frequency Type	Frequency Enhancement	(RE)	
Auto		Semi		Fix		Preset mode	Two-image display																One-image Display										
							Left Image								Right Image																		
PRIEF	Type	Type	Lfix	Sfix			GA	GT	GC	GS	RN	RT	RE	GA	GT	GC	GS	RN	RT	RE	GA	GT	GC	GS	RN	RT	RE						
4S	I	III	2.0	200	A	1.0	O	0.6	0.5	5	F	0.5	1.0	A	0.6	0.1	5	T	5.0	0.8	O	0.6	0.5	5	F	0.5							
4S	I	III	2.0	200	A	0.9	O	0.6	0.4	5	F	0.5	1.0	A	0.7	0.1	5	T	5.0	0.8	O	0.6	0.4	5	F	1.0							
4S	I	III	2.0	200	A	1.0	O	0.6	0.5	3	T	0.5	1.0	A	0.6	0.1	3	T	5.0	1.0	O	0.6	0.5	3	T	0.5							
4S	I	III	2.0	200	A	0.9	O	0.6	0.4	3	T	0.5	1.0	A	0.7	0.1	3	T	5.0	0.9	O	0.6	0.4	3	T	0.5							
4S	VI	III	2.0	200	A	0.8	O	0.6	0.3	5	T	0.5	0.8	A	1.0	0.1	5	T	5.0	0.8	O	0.6	0.3	5	T	0.5							
4S	I	III	2.0	200	A	0.9	O	0.6	0.0	5	T	0.5	0.9	A	0.9	-0.1	5	T	5.0	0.9	O	0.6	0.0	5	T	0.5							
4S	I	III	2.0	200	A	1.0	O	0.6	0.5	5	T	0.3	1.0	A	0.6	0.1	5	T	3.0	1.0	O	0.6	0.5	5	T	0.3							
4S	I	III	2.0	200	A	0.8	O	0.6	0.3	5	T	0.3	0.9	A	0.7	0.0	5	T	3.0	0.8	O	0.6	0.3	5	T	0.3							
-	IV	III	2.6	200	A	1.1	F	2.0	0.0	5	T	1.0	0.7	A	2.0	-0.5	5	T	7.0	1.1	F	2.0	0.0	5	T	1.0							
4S	I	III	2.0	200	A	1.0	O	0.6	0.6	4	T	1.0	1.0	A	0.5	0.1	4	T	5.0	0.8	O	0.6	0.6	4	T	1.5							
4S	I	III	2.0	200	A	0.9	O	0.6	0.5	4	T	1.0	1.0	A	0.6	0.1	4	T	5.0	0.8	O	0.6	0.5	4	T	1.5							
4S	I	III	2.0	200	A	0.8	O	0.6	0.4	4	T	1.0	0.8	A	1.0	0.1	4	T	5.0	0.7	O	0.6	0.4	4	T	1.5							
1	I	III	2.0	200	A	1.0	O	0.6	0.4	5	T	1.0	1.0	A	0.6	0.1	5	T	5.0	0.9	O	0.6	0.4	5	T	1.5							
1	I	III	2.0	200	A	0.8	O	0.6	0.3	5	T	1.0	0.8	A	1.0	0.1	5	T	5.0	0.7	O	0.6	0.3	5	T	1.5							
4S	II	III	2.0	200	A	1.0	O	0.6	0.6	4	T	1.0	1.0	A	0.5	0.1	4	T	5.0	0.8	O	0.6	0.6	4	T	1.5							
4S	I	III	2.0	200	A	1.0	O	0.6	0.5	4	T	1.0	1.0	A	0.6	0.1	4	T	5.0	0.8	O	0.6	0.5	4	T	1.5							
4S	I	III	2.0	200	A	0.8	O	0.6	0.4	4	T	1.0	0.8	A	1.0	0.1	4	T	5.0	0.7	O	0.6	0.4	4	T	1.5							
4S	I	III	2.0	200	A	1.0	O	0.6	0.5	3	T	1.0	1.0	A	0.6	0.1	3	T	5.0	0.8	O	0.6	0.5	3	T	1.5							

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[Lower Extremity 2]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
Contrast	2	1722	ANKLE JNT, ARTHRO :C (AP)	Ankle joint exposure with a contrast medium	
	2	071B	PATL. AXL., ARTHRO :C (AP)	Exposure of patellar with a contrast medium by axial projection	
Magnifi- cation	2	4707	LO. EXTREMITY, MAG :M (AP)	3x or more magnification of the toe and other sites	

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[Test 1]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
	1	0900	SENSITIVITY		
	1	0901	SHARPNESS		
	1	0902	LINEARITY		
	1	0903	IMAGE-FORMAT		
	1	0904	CONTRAST		
	1	0905	MAX 0.5		
	1	0906	MAX 1.0		
	1	0907	MAX 2.0		
	1	0908	MAX 3.0		
	1	0909	MAX 4.0		
	1	090A	AVE 0.5		
	1	090B	AVE 1.0		
	1	090C	AVE 2.0		
	1	090D	AVE 3.0		
	1	090E	AVE 4.0		
	1	091B	SHAD. /RELATIVE SENS.	A test menu that subjects an IP to uniform exposure to check shading uniformity and S values. SEMI AUTO mode applied at L=1.	
	1	091B	1 SHOT PHANTOM	A test menu that exposes a phantom for checking several performance items.	
	1	091B	ERASURE (PRE-EXPOSURE)	A test menu that subjects an IP to a large exposure dose of approximately 100mR to 200mR.	

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[Test 2]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
	1	091E	ERASURE2 (REFRESHED IP)	A test menu that handles an IP that has been subjected to Erasure2 (Refreshed IP).	
	1	091E	DARK NOISE TEST	A test menu that checks occurrence of an error after Erasure2 (Refreshed IP) is conducted.	
	1	5900	AVE5CT08	This is to output images in 0.8 (GT:A) of density for Semi III (CT).	Auto V (Dmin = 1.0) using the Type II S ₂ in the Auto Mode.
	1	5901	AVE5RT08	This is to output images in 0.8 (GT:A) of density for Semi III (RT).	Auto V (Dmin = 0.4) using the Type II S ₂ in the Auto Mode.
	1	5902	AVE5RM08	This is to output images in 0.8 (GT:A) of density for Semi III (RM).	Auto V (Dmin = 0.2) using the Type II S ₂ in the Auto Mode.
	1	5903	AVE5RB08	This is to output images in 0.8 (GT:A) of density for Semi III (RB).	Auto V (Dmin = 0.0) using the Type II S ₂ in the Auto Mode.
	1	5904	AVE5CB08	This is to output images in 0.8 (GT:A) of density for Semi III (CB).	Auto V (Dmin = 0.6) using the Type II S ₂ in the Auto Mode.
	1	5905	AVE5LB08	This is to output images in 0.8 (GT:A) of density for Semi III (LB).	Auto V (Dmin = 1.2) using the Type II S ₂ in the Auto Mode.
	1	5906	AVE5LM08	This is to output images in 0.8 (GT:A) of density for Semi III (LM).	Auto V (Dmin = 1.4) using the Type II S ₂ in the Auto Mode.
	1	5907	AVE5LT08	This is to output images in 0.8 (GT:A) of density for Semi III (LT).	Auto V (Dmin = 1.6) using the Type II S ₂ in the Auto Mode.
	1	5908	AVE5CM08	This is to output images in 0.8 (GT:A) of density for Semi III (CM).	Auto V (Dmin = 0.8) using the Type II S ₂ in the Auto Mode.
	1	6900	AVE5CT12	This is to output images in 1.2 (GT:A) of density for Semi III (CT).	Auto IV (Dmin = 1.8) using the Type II S ₂ in the Auto Mode.
	1	6901	AVE5RT12	This is to output images in 1.2 (GT:A) of density for Semi III (RT).	Auto IV (Dmax = 1.2) using the Type II S ₁ in the Auto Mode.
	1	6902	AVE5RM12	This is to output images in 1.2 (GT:A) of density for Semi III (RM).	Auto IV (Dmax = 1.0) using the Type II S ₁ in the Auto Mode.
	1	6903	AVE5RB12	This is to output images in 1.2 (GT:A) of density for Semi III (RB).	Auto IV (Dmax = 0.8) using the Type II S ₁ in the Auto Mode.
	1	6904	AVE5CB12	This is to output images in 1.2 (GT:A) of density for Semi III (CB).	Auto IV (Dmax = 1.4) using the Type II S ₁ in the Auto Mode.
	1	6905	AVE5LB12	This is to output images in 1.2 (GT:A) of density for Semi III (LB).	Auto IV (Dmax = 2.0) using the Type II S ₁ in the Auto Mode.
	1	6906	AVE5LM12	This is to output images in 1.2 (GT:A) of density for Semi III (LM).	Auto IV (Dmax = 2.2) using the Type II S ₁ in the Auto Mode.

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[Test 3]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
	1	6907	AVE5LT12	This is to output images in 1.2 (GT:A) of density for Semi III (LT).	Auto IV (Dmax = 1.0) using the Type II S ₁ in the Auto Mode.
	1	6908	AVE5CM12	This is to output images in 1.2 (GT:A) of density for Semi III (CM).	Auto IV (Dmax = 1.6) using the Type II S ₁ in the Auto Mode.
	1	7900	AVE5CT16	This is to output images in 1.6 (GT:A) of density for Semi III (CT).	Auto IV (Dmax = 1.8) using the Type I S ₁ in the Auto Mode.
	1	7901	AVE5RT16	This is to output images in 1.6 (GT:A) of density for Semi III (RT).	Auto IV (Dmax = 1.2) using the Type I S ₁ in the Auto Mode.
	1	7902	AVE5RM16	This is to output images in 1.6 (GT:A) of density for Semi III (RM).	Auto IV (Dmax = 1.0) using the Type I S ₁ in the Auto Mode.
	1	7903	AVE5RB16	This is to output images in 1.6 (GT:A) of density for Semi III (RB).	Auto IV (Dmax = 0.8) using the Type I S ₁ in the Auto Mode.
	1	7904	AVE5CB16	This is to output images in 1.6 (GT:A) of density for Semi III (CB).	Auto IV (Dmax = 1.4) using the Type I S ₁ in the Auto Mode.
	1	7905	AVE5LB16	This is to output images in 1.6 (GT:A) of density for Semi III (LB).	Auto IV (Dmax = 2.0) using the Type I S ₁ in the Auto Mode.
	1	7906	AVE5LM16	This is to output images in 1.6 (GT:A) of density for Semi III (LM).	Auto IV (Dmax = 2.2) using the Type I S ₁ in the Auto Mode.
	1	7907	AVE5LT16	This is to output images in 1.6 (GT:A) of density for Semi III (LT).	Auto IV (Dmax = 2.4) using the Type I S ₁ in the Auto Mode.
	1	7908	AVE5CM16	This is to output images in 1.6 (GT:A) of density for Semi III (CM).	Auto IV (Dmax = 1.8) using the Type I S ₁ in the Auto Mode.

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Exposed Anatomical Regions/Applicable Menus/Display Parameters

[Dynamic Range Control Processing/Tomographic Artifacts Suppression Processing]

Technique	Level	Menu Code	Menu (PA) : Right-to-left reversed output	Applicable projection method and observation site	Remarks
Plain	1	0200	CHEST, GENREAL (PA)	Plain thoracic exposure; observation of the lung field and mediastinum for shadows	
Tomography	1	2200	LUNG : T (PA)	Mainly tomography of the lung field; observation of the lung field and rib	
Magnification	1	0300	BREAST (PA)	Observation of the whole breast Available for other exposures including spot exposure	Use the Mo bulb.

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